PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS (PIDE),

ISLAMABAD

DEPARTMENT OF ECONOMICS AND ECONOMETRICS

"FINANCIAL INCLUSION THROUGH MOBILE MONEY IN PAKISAN: ANALYSIS OF THE FACTORS AFFECTING ITS ADOPTION AND USAGE"

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M. Phil Economics

PIDE2018FMPHILECO03

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Dated: 12th November, 2020

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CERTIFICATE

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Economics

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ACKNOWLEDGMENT

Praise be to Allah, by whose power and glory all good things are accomplished. Foremost, I wish to express by sincere gratitude to my learned supervisor Dr. Abdul Jalil, Professor at PIDE, for his constant support and guidance throughout my research. The study would not have been possible without his patience, motivation and cognizance. Further, I would like to acknowledge the counsel, deliberation and forbearance of Dr. Fareeha Adil, Associate Research Fellow, Sustainable Development Policy Institute (SDPI). She has contributed greatly in the completion of this study. Last, but not the least, I would like to pay my heartiest regards to my family and friends for being extremely supportive and encouraging throughout the span of my studies and research work. I am truly thankful to everyone who has been part of my thesis journey.

I dedicate this thesis to my parents, Mr. Khalid Mehmood and Mrs. Rahat Khalid, who have blessed me with the spirits of sincerity, hard work, truth and expression.

Abstract

This study attempted to investigate the socio-economic and behavioral factors affecting the adoption of mobile money services in Pakistan. Among socio-economic factors, age, gender, income, education, employment status, ownership of bank account and distance to the nearby financial institution were categorized as demand related. Unified Theory of Acceptance and Use of Technology was used for behavioral factors, which were categorized as supply related with additional constructs of Perceived Financial Cost, Perceived trust and Perceived Risk.

For the identification of the factors, a self-structured questionnaire was administered to a target sample of 250 respondents who were users and non-users of mobile money services across the four provinces of Pakistan.

The analysis of the results revealed that among socio-economic factors Gender, Bank Distance, Education Level and Mobile Money Network are significant in determining the adoption and use of mobile money services in Pakistan. The results highlighted that females are less likely to be the adopters of mobile money due to social influence. Also, the result indicates that in Pakistan mobile money could be adopted by an individual of any age group, irrespective of his income levels, employment status or bank account ownership.

Analysis of behavioral factors, which made use of Confirmatory Factor Analysis (CFA), revealed that Performance Expectancy, Effort Expectancy, Social Influence and Perceived Trust are positively significant factors that affect the Behavioral Intention and, Facilitating Conditions positively affects the usage behavior of the people to use mobile money positively. On the Contrary, Perceived Financial Cost and Perceived Risk do not affect the intention to use mobile money.

Keywords: Financial Inclusion, Mobile Money Adoption, UTAUT, Pakistan

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Chapter 1: Introduction

1.1 Background

In a rapidly progressing world, access to affordable financial services has long been a policy debate subject especially, in emerging economies. Since the last decade, this debate has set on new course with the emergence of mobile money services as a tool of financial inclusion. Mobile money as a digital finance presents an unparalleled opportunity of delivering financial services to the financially excluded or unbanked population across the world.

Financial inclusion mostly defined as the '*access to formal financial services at affordable rates to all members of the society especially low income and disadvantaged groups'* is a common issue in developing countries as compared to developed countries. World Bank Report 2017 shows that against 94% of the formally financially included population of the high-income countries, only 63% of the people living in developing countries had formal financial services accounts. Rest of the people, having no access to formal financial services; disproportionately depend on informal means such as taking loans from friends/relatives/money lenders, keeping savings at home, and hawala/hundi etc. These financially excluded people also find it hard to smoothen their income and consumption rendering them vulnerable to market or other forms of shocks.

Until recently, policy makers focused on forming strategies that would lead to an increase in bank account ownership of the financially excluded population including policies for increase in bank penetration and ATM access. However, since the last decade, with the rise of 'Digital Age', the situation has begun to change. The evolution of technology has revolutionized the financial sector by bringing in useful innovations. It has led to the emergence of digital financial channels like mobile money as a substitute of traditional banking system for people having no access to formal

financial services thus opening up new possibilities for increasing financial inclusion. With this a new slogan, “Revolution in Digital Affairs” (RIDA) has also emerged in the financial sector for the stakeholders who want to bring development in the industry of mobile money services in the next 20 years (Ahmed, 2020).

Mobile money is defined as the use of mobile devices for the purpose of financial transactions and access to formal financial services (International Telecommunication Union). Mobile money requires Information and Communication Technology (ICT) platforms and close coordination between financial institutions and telecommunication companies when providing people financial services similar to banks (Lashitew et al, 2018). During this process, either financial institutions or telecom firms act as the main operators of mobile money services. Other than offering basic financial services like money transfer, m-wallets let the customers to safely deposit, store and withdraw their money at lower price. In addition, mobile money provides other services like remittances, payments of bill, salaries disbursement, retail payments, loans, saving and insurance. In providing these services to the customers, mobile money does not need to be linked to a bank account.

Mobile money is presently considered a major enabler of economic growth (Ozili, 2018) as it allows the underprivileged population to have access to financial services. Lack of access to financial services is considered as one of the barriers of poverty alleviation as it makes people vulnerable to many risks and shocks. However, when people have access to the better and readily available financial services through mobile money they can invest better in their health, education and businesses (World Bank, 2017).

Mobile money services also possess low cost benefits for both users and service providers. McKinsey Global Institute report (2016) mentioned that cost of digital finance is 90 percent lower than traditional financial systems. Due to this, service providers can extend affordable financial services to the people living in far-flung areas with no banks nearby.

A daily wager living in the city is now able to transfer money to his parents living in a village with no bank. His parents, who could not travel to the bank and if they did they had to incur transportation cost, are now happier to receive that money from the shopkeeper (working as an agent) in their village. Pakistan's Easypaisa and Kenya's M-Pesa are the best examples of providing such financial facilities to the lower income groups especially in the rural areas.

Since 2006 to 2016, mobile money services rose from a number of only 7 to 277 globally with more than 160 million registered users in South Asia only (GSMA 2017). Moreover, mobile money services adoption and diffusion in Kenya increased tremendously since its launch in 2011. The adoption of M-Pesa was at such a large scale that its domestic transactions exceeded Western Union's global transactions (IMF, 2011). Similarly, in Pakistan, after State Bank of Pakistan brought financial development reforms by introducing Branchless Banking Regulations in 2008, the industry of mobile money has been thriving. Since 2009, more than eight live mobile money service providers have constantly been innovating, testing and launching new products and services in the markets (Karandaaz, 2017).

1.2 Problem Statement

Despite increasing mobile money service providers in Pakistan and their increasing penetration in the market, majority of the people still do not have access to formal financial services. In response to this, State Bank of Pakistan launched a National Financial Inclusion Strategy (NFIS) in 2015

with an objective to enhance formal financial access to 50% of the adult population by 2020. The strategy's focus is on branchless banking which also incorporates mobile money services. The branchless banking has been responding because of this strategy but the progress remains unsatisfactory. As per the latest quarterly statistics of SBP on Branchless Banking (July-Sep, 2019), almost 57% of the agents are inactive, 45% mobile money accounts are inactive and share of female remained low at 21.3%. Moreover, compared to previous quarter, number of transactions decreased by 1.6 percent and the share of less developed regions like Balochistan, Azad Kashmir and Gilgit-Baltistan in branchless banking remained marginal. Given these results, it has become more than necessary now to find the reasons behind this slow progress by highlighting the factors that play a significant role in affecting its adoption.

In spite of gaining huge success in some countries, mobile money has not produced similar results in others. Additionally, competing mobile money services within a country have also displayed uneven success. Despite the potential significance of this innovation, its insufficient progress in Pakistan indicate that we need to understand the problem at its root cause. For this purpose, it is important to identify and analyze the forces responsible for affecting the adoption of mobile money. It is unclear which factors play a huge role in affecting people's choices regarding mobile money adoption in Pakistan; demand side, supply side or both simultaneously. Without the identification of these factors, effective and targeted policies cannot be formed. Given the socio-economic impacts of mobile money, it is imperative to identify these factors.

1.3 Research Question

1. What is the current situation of mobile money services in Pakistan from users' perspective?
2. Which demand-side (socio-economic and demographic) factors affect mobile money adoption in Pakistan?

3. Which supply-side (behavioral) factors affect the rates of mobile money adoption?

1.4 Significance of Research

Mobile money has gained a lot of attention and became a huge success in Pakistan as it significantly benefits the un-banked population. The findings of research will help the policy maker and mobile money service providers to know the evidence from Pakistan required to further increase financial inclusion in Pakistan. The study will shed light on the factors that the mobile money service providers can target in their product development strategies and for the policy makers to form effective policies to increase its usage among the excluded population.

1.5 Objectives

This study pursues the following specific objectives to investigate the above-mentioned problem statement:

- To find perceptions of the people of Pakistan regarding mobile money
- To determine which of the demand side factors(demographics and socio economic) may hinder or facilitate the adoption of mobile money services in Pakistan
- To determine the supply related factors (behavioral) that may hinder or facilitate the adoption of mobile money services in Pakistan.
- To provide recommendations to the policy makers and service providers in the light of the findings.

Chapter 2: Literature Review

The use and the benefits of mobile money is a matter that has time and again come up for discussion for the reason of the popularity of the concept, especially in emerging economies. The evolution of technology is yet another contributor to the popularity of mobile money. While participants in the various parts of the world attempt to make mobile money a success, not all stories see a happy end. There are only a few, which become successful enough for their trails in other markets. In spite of mixed results, mobile money has made its mark over the course of the last ten years. It is generating a profitable ecosystem especially in the developing countries for both the service provider and its users, people and businesses alike. Numerous studies have been conducted in order to identify its impacts, factor affecting its adoption and diffusion and, how to get maximum benefit out of it. The literature below will build the case for present study by giving an overview of this innovation that is grabbing everyone's attention and changing the landscape of financial services industry in the developing world. The literature will also shed a light on its impacts and the factors responsible for influencing its diffusion and adoption rate in these countries.

2.1 Overview of Mobile Money Services

This section will give an overview of mobile money services from its emergence to its definitions and wide adoption across developing countries.

2.1.1 The Evolution of Financial Services and Emergence of Mobile Money

History tells us that financial services system dates back to as early as 1000BC where in the time of Phoenicians, a system of credit and loan existed. Through the history, there are evidences that at times, royal palaces, temples and people's houses used store valuable commodities like grain and against these receipts used to be issued for ownership (Selgin, 2019). During crusade period (1095 – 1492) to ensure the safety of money during trips, a cheque like paper was issued by

monastic entity that a person could get discounted at any of its "banks" (News Finance, 2019). Over the passing years, other such institutions began to emerge formally and in 1406, world's first bank, Banco Di San Giorgio, emerged in Genoa, Italy (News Finance, 2019). After that similar many similar financial institutions began emerging, each trying to be better than the previous, until the world formed its current global banking system.

This banking system provides financial services to many people and business, increasing their incomes, profits and boosting the growth in the economy. However, the same system has not been successful in including a vast majority of the population in formal financial sectors. It is difficult for the poor to main the minimum balance requirement of the bank given his unstable income patterns (Aron, 2018). Additionally, high costs of maintaining the account and failure to produce collateral when in need of loan makes these financial services unaffordable for him.

This challenge of reaching out to the poor and providing them affordable financial services had hindered the growth of financial market in the past. However, since 2007, with the emergence of first mobile money technology M-Pesa, in Kenya the growth of financial markets has seen a tremendous increase. Technology has helped the financial industry to overcome this challenge by providing financial services to the poor via mobile phones. In the last decade, it has been observed that mobile money has the potential to serve the financially excluded with low cost benefits for the providers as well (Kendall et al, 2011).

As mentioned above that mobile money rose to success in 2007 when Safaricom and Vodafone's M-Pesa, the industry pioneer, first emerged in Kenya. It was initially started to manage microloans as transferring of fund to the rural farm areas of Kenya was hard for UK Department for International Development. Physical handling of cash was also not feasible as the distance between

the bank and an average rural Kenyan household was several kilometers and was cost ineffective. Then they found that 54% of the population has access to cellphones and hence, they decided to transfer the money to the cellphones and overcome this problem. Later on, it was observed that the people were actually sending that money to each other instead of only making loan payments. This led to a setup of network of agents across the country to send and receive money over Safariom account. In short span of time, M-Pesa rose to success and is currently providing financial services to 93% of Kenyans (McGath, 2018).

2.1.2 Definition of Mobile Money

World Remit defines Mobile Money as a technology accessed through mobile phone which lets people receive, store and spend money. Sometimes, it is also known as 'mobile wallet' or by the name of service like M-Pesa, Easypaisa, GCash etc. Global System for Mobile Communications (GSMA) simply defines it as a service, which requires a mobile phone to access financial services. Chummun (2019) says that it a composition of mobile banking and mobile-payment. Penu (2020) hails mobile money as a convenient and cost-effective mode of transferring money and making payments using a mobile phone. Business Dictionary adds that it is a term broadly used for the realm of electronic commerce. Financial Access Survey of International Monetary Funds (IMF), describes it in detail as the digital medium of exchange and store of money using mobile phones through a network of mobile money agents. It further adds that mobile network operators primarily offer this service solely or in partnership with other institution. In Pakistan, State Bank defines financial inclusion as *"an access to formal financial services by individuals and firms to use a range of quality payments, savings, credit and insurance services which meet their needs with dignity and fairness".*

IMF highlights an important difference between Mobile Money, Mobile Banking and Mobile Wallet. Against mobile money, Mobile Banking is the use of mobile device to access banking services like balance inquiry, deposits, transfer payments etc. on phone via banking application. For this, a smartphone is a prerequisite. Conversely, Mobile Wallet is 'that' application which is installed on mobile phones and allows people to make peer-to-peer (P2P) transfers, in-store purchases, online payments and other similar financial services. However, mobile money also has mobile wallet, or m-wallet, which does not require a person to own a smartphone and install the application in it. This m-wallet is simply an electronic account in which a person can store his money and can access through any handset of mobile phone.

The present study will be considering IMF's definition of mobile money and will focus on only those mobile money services that are independent of traditional banking network.

2.1.3 How does it work?

Accessing mobile money services is quite easy even for a person who does not own a mobile phone. All he has to do is to go the Point of Sale (POS) or mobile money agent and give the agent his CNIC number to either send or receive money (OTC transfers). Whereas, for a person who wants to open a mobile money account can simply do that via his mobile phone according to the instructions of the service provider or he can simply visit the mobile money agent and ask him to do it on his behalf. The only pre-requisite of opening a mobile money account is the availability of active mobile number and CNIC; Users from ALL networks can then avail services.

2.1.4 Mobile Money Services in the World

East African countries are the pioneer of mobile money revolution. Emerging from Kenya in 2007, these services have spread across the developing world at a faster pace and are providing financial services to the previously excluded population. The acceptance of mobile money in Kenya,

Uganda and Tanzania was at such a large scale that the value of mobile money transactions was represented in terms of GDP *(see Table 2.1).*

Table 2.1. Value of Mobile Money Transactions as a percentage of GDP

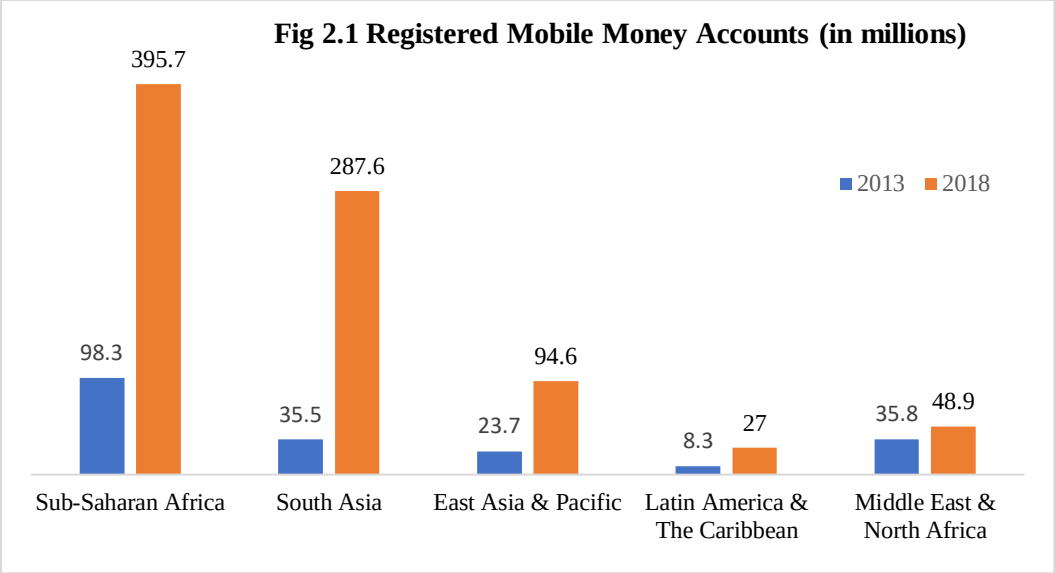
	Kenya	Uganda	Tanzania
2009	23	2	2
2013	44	35	51
2017	47	62	52

Source: Financial Access Survey (IMF)

According to GSMA, there are 272 mobile money services currently operating across the globe in 80 countries with more than 866 million registered accounts and 5.3 million registered agents and this novel technology is generating over $2.4 billion direct revenues (GSMA, 2018). Moreover, the number of registered number of mobile money accounts rose from 203 million in 2013 to 866.2 million in 2018.

Camner et al (2009) found out the reasons behind the wide acceptance of M-Pesa in Kenya and then in Tanzania. They reported that the success of M-Pesa in Kenya is quite complex and may have been an exception rather than rule. Among the many factors that were behind its success, the existence of a wide domestic remittance corridor from urban to rural played a key role. Supporting this further, Kenya's cultural environment along with suitable pricing mechanism, convenience, advertisement, product development, sound mobile infrastructure, Safaricom's brand recognition and the existence of a trust relationship with the customers made M-Pesa an exceptional case of mobile money success in this developing country. Camner et al (2009) further suggested that mobile money service providers should adopt strategies best suited for their country context. For instance, advertisement strategy similar to Kenya did not increase the adoption in Tanzania

initially. This was because the financial literacy of Tanzanians were comparatively lower than the Kenyans. Hence, the need was to explain the service to the people before exposing the brand. Later, new advertisement strategies were adopted in which consumers were explained about the use and working of M-Pesa which led to an increase in its adoption.



Source: GSMA (2013 & 2018)

The increase in the usage of mobile money is also visible in other regions of the world *(See figure 2.1*). The greatest increase in the usage of mobile money is seen in Sub-Saharan and South Asian countries which is around five-fold and seven-fold respectively since 2013 (GSMA, 2018). East Asia and Pacific regions have also experienced a fourfold increase in mobile money usage over the span of five years.

This tremendous growth and fast acceptance of mobile money as compared to traditional banking services is due to the fact the infrastructural cost of banks that do not allow them to access entire population. The number of commercial bank branches per square km are always limited against the deep penetration of mobile money agents. This is one of the main factors that has led to the success of mobile money in developing countries.

Among many mobile money services launched in low- and middle-income countries, only few have been successful in creating a large-scale impact. For instance, M-Pesa in Kenya, Airtel in Tanzania, Gcash and Smart Money in Philippines, MTN Mobile Money, Wizzit and FNB in South Africa, Easypaisa in Pakistan and EKO in India (Mauree & Kohli, 2013) have penetrated in to the financially excluded region of these countries and are successfully provided financial services to the masses

2.2 Overview of Mobile Money Services in Pakistan

Mobile money penetrated in to the markets of Pakistan due to people lacking access to affordable financial services. Financial inclusion has been a concern for policy makers as it is one of the major issues in the economic development in Pakistan. Only 23% of the population in Pakistan is formally financially included either through banks or through other formal institutions (Access to Finance Survey 2015, SBP). 24% of the population avail financial services informally. Thus, in total 47% of the population is availing financial services in informal way. However, according to FINDEX Data of 2017, this percentage is even lower and the estimated financially included adult population in Pakistan is actually 21%.

The low number of financially included people in Pakistan is due to the low penetration of traditional system of financial delivery. World Banks reveals that ATMs and Commercial bank branches per 100,000 adults in Pakistan are 10 (World Bank). Hence, when there are only few branches and ATMs at great distances then people either have to rely on informal financial services or not avail any and become victims of shocks. But the evolutionary emergence of mobile money in financial delivery systems has proved an effective solution to overcome this problem not only in Sub-Saharan African Countries but in Pakistan also. Moreover, the number of Point of Sale

(POS) is higher than both of the aforementioned services as it is 47.1 per 100,000 adults (Consultative Group to Assist the Poor -CGAP).

Easypaisa was the first mobile money service provider launched in Pakistan. In a population of over 180 million with only 15 percent bank penetration rate in 2008 (World Bank), Easypaisa seized the opportunity to deliver mobile money service in Pakistan and gained the advantage of first entrant. Launched in 2009, by Telenor Pakistan in Partnership with Tameer Bank, more recently known as Telenor Microfinance Bank, is presently the leading mobile money service provider in Pakistan and the third largest in the world (CGAP). It is catering around 24.7 million registered customers through an extensive network of around 130 thousand agents all over Pakistan (Telenor Annual Report, 2018).

Initially launched as a money transfer service, Easypaisa, through its constant innovations, is now also providing services like mobile load, bill payments, QR payments, loans, insurance, and remittances. According to Pakistan Telecommunication Authority, Easypaisa processes more than 1 million transactions each day. CNN stated that "Easypaisa is probably the model for the future and not M-Pesa".[1]

In 2010, United Bank Limited, a large private commercial bank of Pakistan launched its mobile money service, Omni, to cater the needs of financially excluded population. It allows people to open Omni bank account at any UBL POS commonly known as "Omni Dukaan" closer to their homes just by using their CNIC and mobile number. Omni has been providing similar mobile money services to all people including those who do not have UBL Omni bank account. They can

[1] http://edition.cnn.com/2010/TECH/01/14/mobile.phone.banking/index.html

make over the counter transactions just like Easypaisa. Omni is among the top four mobile money service providers in Pakistan with a market presence of 14% (Karandaaz, 2017).

Afterwards in 2012, Easypaisa's biggest competitor Jazz Cash, previously known as Mobicash, was launched by Jazz (mobile network operator) in partnership with Mobilink Microfinance Bank. Its share in the market is almost equivalent to Easypaisa i.e, 30% (Karandaaz, 2017) and provides similar financial services.

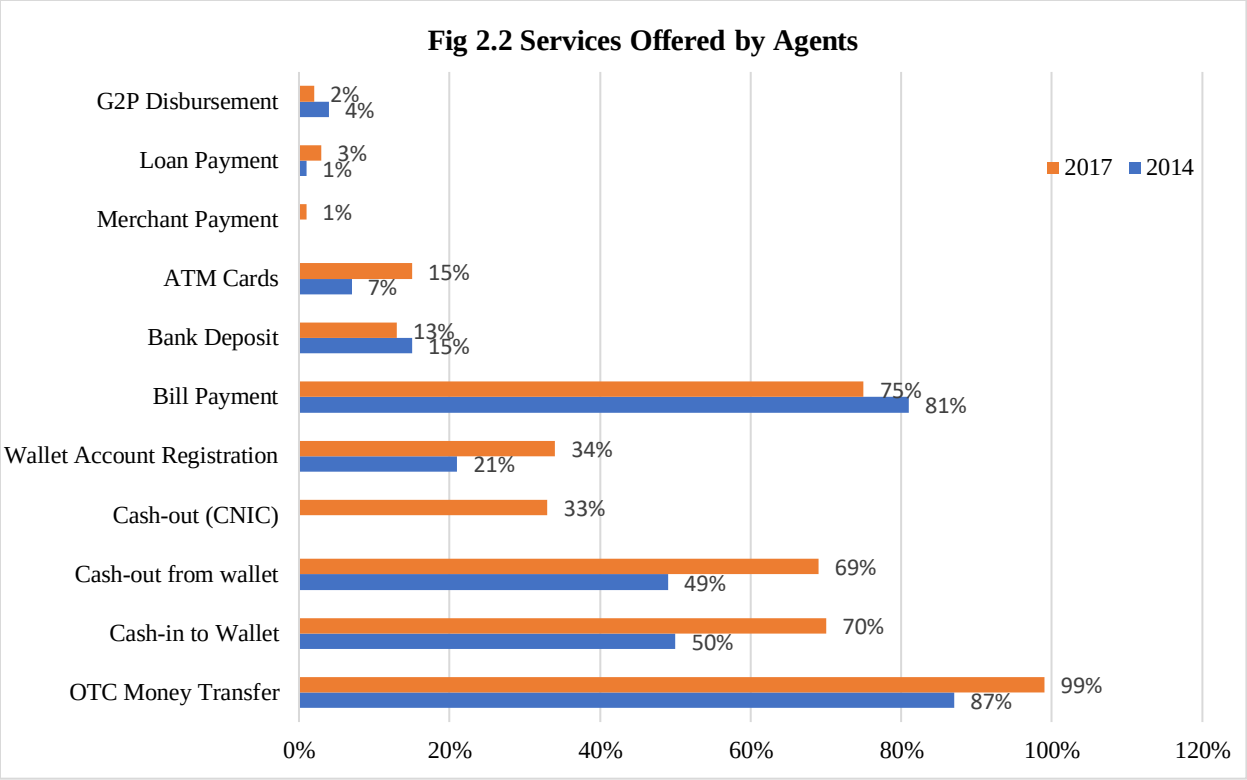
Ufone Upaisa is another among top four branchless banking service provider with a market share of 14%. It was launched in 2013 and provides similar mobile money services like funds transfer, mobile top up, bill payments, etc. It allows the user to transfer funds from Upaisa account to bank account and vice versa.

Zong TimePey, JS Bank, HBL Express and Alfalah Alif are some of the other mobile money service providers in Pakistan but with only 3% market share.

Mobile Money usually operates on two different models, OTC (Over the Counter) transactions and Mobile Wallet. Amongst these two, OTC dominates the mobile money market. Fig 2.2 highlights the list of services mostly offered by the agents of the above-mentioned mobile money service providers in Pakistan. On top of all is the OTC transfers, cash deposit and withdrawal and bill payments.

2.3 Financial Inclusion, Development and Growth

Innovations in mobile money have been the direct result of financial inclusion process that has come forth because of the concept of financial development. When we look at the early research, which sets out to explore the links between financial development and the growth of the economy, the matter was discussed as an egg and chicken problem.



Source: Karandaaz

The views of earlier economists on the relationship between financial development and economic growth were divided in to four different categories. Schumpeter (1911) and John Hicks (1969) supported the supply-leading view that says that financial development plays a key role in causing economic growth. Conversely, Robinson (1952) and other economists negated with this view and supported the demand-following hypothesis of economic growth spurring financial development. Apart from these two-opposite school of thoughts, the empirical findings of the third group of economists including Lewis (1995) and Patrick (1966) among many others found a bi-causal relationship between the two suggesting that both financial development and economic growth cause each other simultaneously. However, in contrast to the three above-mentioned views, the fourth view does not recognize the existence of any of these types of causal links between the two macroeconomic variables. Economists supporting this theory are of the view that the existence of

any type of relationship between the under discussion macroeconomic variables is purely coincidental rather than causal. Nobel Laureate, Robert Lucas termed the relationship between finance and growth as 'overstressed' (Lucas, 1985).

However, among all four views, supply-leading hypothesis remains dominant and it has been established that the success of the financial resources translates into economic boom, a trend which stands true for most of the developing world. This view is not only supported by recent findings but also has the support of 1990s economists, Schumpeter (1912), Hicks (1969) and King& Levine (1993). These studies have shown that developing countries usually have less developed financial sector and when development occurs in this sector it affects economic growth positively and significantly. Other studies have also suggested that even when other macroeconomic conditions have been met but there is low level of financial development then this might lead to poverty trap and hinders the full potential of the economy (reference). It happens because less developed financial systems fail to provide financial services to the majority masses thus depriving them of finding a safe route from various financial shocks and emergencies.

Financial development remained the focus of all developing countries for economic growth and development until 2010. It was then observed that a major segment of the society was outside the formal financial circle with no access to affordable financial services even when policies were oriented towards financial development. International Monetary Fund Report on Pakistan (2017) shed more light on this fact that at a particular level of financial development, some countries can be more financially inclusive than others can. The same report also highlighted the fact that even though Pakistan and Vietnam are at the same level of financial development, Pakistan is lower on Financial Inclusion Index with only 21% of the adult population being financially included (FINDEX, 2017). Several other similar observations then shifted the concern of policy makers

from financial development towards financial inclusion establishing that the latter is a more pressing issue of the current world with more than 1.7 billion unbanked adult population globally (World Bank).

Given the above relationship between the two macroeconomic variables, the focus of the policy makers remained on financial development for economic growth. However, since the past decade the world dynamics shifted the concern from financial development to financial inclusion when studies found that even though financial development is there the extent of financial inclusion is underwhelming. International Monetary Fund (IMF) in its Country Report on Pakistan also highlighted this view in 2017. Empirically, Rasheed et al (2016) studied the need for financial inclusion when considering financial development and discovered that when financial development takes place, it could lead to a boom in the economy, but financial inclusion is a definitive condition necessary to the trend. In another study, Adeola & Evans (2017) explored the correlation of financial inclusion and development with the resulting growth in the economy and was able to conclude a positive but insignificant relationship between financial development and growth. Contrary to this, the correlation between financial inclusion and growth was not only positive but also significant indicating that in between financial development and inclusion, financial inclusion is of greater influence.

This importance of financial inclusion led to the innovations in telecom industry and financial sector and resulted in the emergence of mobile banking. This innovation has replaced conventional banking in many developing countries especially in Africa and has played a vital role in providing financial access to the disadvantage segments of the society. Moreover, mobile money innovations has improved financial services and its access by overcoming infrastructural problems (Allen et al, 2014).

2.4 Mobile Money and its Users

This has been widely accepted that un-banked population, people belonging to the lower income group who live without banking facilities, account for the majority of the users of mobile money as it provides them with affordable and accessible financial services. The empirical analysis of Jack & Suri (2011) revealed that even though richer and highly educated people adopted M-Pesa quickly in the beginning but with the passage of time, its user's characteristics began to change as it became more popular among poorer people. Similarly, in Pakistan, a mobile money user study conducted by Gallup Pakistan (2013) revealed that it is mostly common among the people belonging to financially lower segment of the society especially rural dwellers. The study also labelled this innovation as a game changer for most developing countries as it increases financial inclusion leading towards social inclusion.

Economides & Jeziorski (2015) found that the users of mobile money prefer using this service when there is a need of short-term transaction due to security purposes. Mobile money provides safe storage, as consumers prefer paying a little extra amount rather than carrying cash around out of fear of street crimes.

Moreover, mobile Money systems with similar characteristics when launched in different countries have had produced different outcomes. In order to test the existence of this difference Khan & Blumenstock (2016) studied the adoption of similar mobile money products launched in Pakistan, Ghana and Zambia. They found that despite of similar characteristics, model performing well in one country does not produce similar results in another without country specific adjustments.

2.5 Mobile Money and its Impacts

Mobile money has successfully paved its way into the lives of many people of developing countries. It is not only leaving an impact on the lives of its users but also on the society and the economy. Jack & Suri (2014) studied how M-Pesa influenced the households in Kenya by studying their risk sharing behaviors. They found that people who used M-Pesa were less exposed to shocks and were able to maintain a smooth consumption process. Moreover, when households were hit with financial shocks then through mobile money, they were able to easily and quickly receive money needed to get them through such conditions. In Tanzania, Riley (2016) found similar results where people used mobile money for sending remittances to each other and shared financial risks.

Inn their second study on the long-term impacts of M-Pesa, Suri & Jack (2016) found that due to an increase in the usage of mobile money, household had been able to increase their consumption and savings hence causing poverty to reduce. Poverty statistics showed a 2 percent decline in poverty especially in female-headed household. They also found that mobile money played a substantial role in shifting the occupational interests of 186,000 women from agriculture to businesses and retail thus adding to the women empowerment process.

In Uganda, Munyegera & Matsumoto (2014) found a 69 percent rise in per capita consumption of households due to high usage of mobile money services. They also showed that there were 20 percent more chances for mobile money users in rural areas to receive timely money from their family members in urban centers. Moreover, in comparison to nonuser households, mobile money using households were discovered to receive 33 percent more remittances annually.

In contrast to these empirics, Blumenstock et al. (2015c) attempted to find the impact of mobile money adoption for salaries disbursement in Afghanistan. Their results suggested that mobile money was highly significant in reducing the salary disbursement cost for the operating agency

but it was unsuccessful in influencing the recipients of those salaries in a significant way. In macroeconomic aspects, Weil et al. (2012) documented the impacts of mobile money in Kenya, Tanzania and Uganda and found low levels of macroeconomic effects in Kenya only.

The above-mentioned empirical analyses on the impacts of mobile money has established its significance in socio-economic context. It has also led the researchers, practitioners and organizations to analyzing the factors responsible for the popularity of mobile money in developing countries while simultaneously identifying the barriers responsible for low adoption in other countries.

2.6 Mobile Money and Factors Affecting its Adoption

Literature has identified a significant number of factors affecting the adoption rate of mobile money. The success of mobile money is generally dependent on consumer side perceptions, beliefs and characteristics, agent network, financial and telecom sector infrastructure, innovations and technology, regulatory framework and other macro level factors.

Among many determinants, agent network, the end distributor of mobile money service plays a huge part in its success. A network of agents that are trustworthy, efficient, liquid and profitable can influence the demand of Mobile Money services among people thereby causing a further growth of the agent network. Balasubramanian & Drake (2015) studied how the agent quality and competition affected the demand for mobile money and agent quality. Their results suggested that the existence of competition between agents is beneficial for the success of mobile money services as it raises the demand of these services through transparent pricing system and increased agent efficiency.

Apart from the agent network, Mas & Morawczynski (2009) looked for other factors responsible for the popular use of mobile money in Kenya. Among many factors, they found that zero deposit cost, low and transparent pricing system, simple and easy to use product design, facility to send money to nonusers, convenience of ATM withdrawals and strong branding played a major role in its popular use. Similar studies of Mas & Ng'weno (2010) and Mas & Radcliffe (2010) attributed simple and easy-to-use design, sound management at all stages and affordable prices to the success of M-Pesa. Moreover, Mas & Radcliffe (2010) held differences in telecom and financial regulations as the main reason for uneven success rate of similar mobile money services across different regions.

Lashitew et al. (2018) considered market related (supply and demand) and macro-level factors to study the adoption and diffusion rate of mobile money services. Their results revealed weak relationship between the demand side factors (ATM penetration, Bank concentration and accounts at financial institution) and mobile money adoption rate. Whereas, on supply side, it was revealed that telecom regulatory framework is more important than access to mobile phones for mobile money diffusion process. At macro-level, it was found that countries with weak regulatory framework have high risks of crimes which then compel the users to opt mobile money as a safe and secure way of money transfers. This theory was supported with positive association between GDP per capita and money sending and receiving process and another positive relationship between mobile money accounts and GDP growth. Among controlled macro level variables, GDP per capita was positively related with sending and receiving money but GDP growth led to greater adoption rate. Gutierrez & Choi (2014) found similar results and suggested that the emergence of mobile money industry does not require sophisticated laws and regulatory framework. It concluded

that the absence of strong consumer protection regulations does not prevent the development or the adoption of mobile money services.

In separate study, Mahmoud (2019) analyzed the success factors of mobile money in seven different developing countries of Africa where popular use of mobile money services had been observed. The study found that network distribution of mobile money, bank penetration, rate of Crime, education and regulatory framework were all significantly and positively associated with the number of mobile money subscribers. In order to find whether Urbanisation and GDP per capita have any effect on the mobile money adoption rate, Sarma and Pais (2011) empirical findings suggested that both GDP per capita and urbanisation have a positive link with mobile money adoption rate.

In the behavioral context of the consumers, Maradung (2013) used Technology Acceptance Model (TAM) to understand the diffusion of mobile money services in Botswana. He found that the expected variables; income, education and bank account ownership actually had no significant role in the diffusion of mobile money. Instead he revealed that gender, age and employment status actually determine its diffusion as this innovation is more common in young, male and employed people as compared to old aged, females and unemployed population. Hence the study revealed that despite the lower penetration and absorption of mobile banking services in Botswana, mobile banking is increasingly being adopted in Botswana by males, employed individuals and the youth. Apart from these factors, understanding of how to use mobile money and geographical location of the users; whether they live in rural or urban centers greatly affect the use of mobile money as these services are more commonly used in rural areas (Intermedia, 2013). Moreover, Lema (2017) found that usefulness of mobile money, low pricing and social influence played an important role in making these services common in the society. Whereas, ease of use and trust were found to have

no significant role in its adoption. In contrast to these results, study of Kazi and Manan (2013) based on similar methodology found that other than perceived usefulness of the product and social influence regarding it, ease of use and perceived risk affect the adoption of mobile money services in the two big cities of Pakistan, Karachi and Hyderabad. Lesa and Tembo (2016) also supported the latter findings.

Borg & Persson (2010) study on Wizzit, a mobile banking service in South Africa indicated that the discourse of mobile money innovations along with its features and social factors are the main factors influencing its usage. They further added that building the trust of existing customers and its potential adopters in mobile money service is the main obstacle in the process of its diffusion. In a similar study of Maitai & Omwenga (2016) on Kenya, consumer behavior, which include usage and belief regarding mobile money service, is the major factor responsible for affecting its adoption. The study also suggested that customers opt for mobile money because of its location-free, fast easy and timely access of money payments and transfers. However, where these time, cost and location free conveniences of mobile money add to its increased usage, poor network of agents and insufficient support hinders its success. In addition to these, lack of service awareness, trust on the service and its providers, insufficient trainings and unfriendly product designs are other factors responsible for its low penetration in the society (Chogo & Sedoyeka, 2014).

Etim (2014) conducted an Information and Technology (ICT) study in Nigeria to highlight the reasons behind the low level of mobile money adoption. The author focused on investigating whether people perceived mobile phones easy to use financial services through mobile money. Findings revealed that the usage of mobile phones for communication purposes might be higher but people rarely use mobile phones for financial activities like mobile banking.

Tobbin & Kuwornu (2011) used Technology Acceptance Model (TAM) and Diffusion of Innovation (DOI) Theory to analyse the use and acceptance of mobile money innovation among Ghanaian consumers. Findings revealed that Perceived Ease of Use, Perceived Usefulness, Perceived Risk, and Perceived Trust were all found to have significant impacts on Behavioral Intention to use adopt mobile money. Oluoch et al., (2012) and Narteh et al., (2017) found similar results in Ghana. Additionally, the latter study found that Social Influence and Perceived cost of use significantly affected both mobile money adoption and the Behavioral Intention.

Another study of Al-Jabri & Sohail (2012) based on Diffusion of Innovation Theory to determine the factors affecting the mobile banking adoption in Saudi Arabia. They found a positive impact of relative advantage, compatibility and observability on mobile banking adoption. Whereas, trialability and complexity appeared to be not affecting the adoption rate. Khraim et al., (2011) explored the factors affection adoption of mobile money in Jordan and found that self-efficacy, trailability, compatibility, complexity, risk and relative advantage were all significantly influence mobile banking adoption.

In Zimbabwe, Marumbwa (2014) found that Mobile Money Transfers (MMT) are negatively influenced by age, gender and income whereas education levels and employment status are key socio-demographic variables positively influence MMT.

2.7 Conclusion

Among many factors responsible for difference in the adoption rates of mobile money over different areas, factors related to consumer behavior and intentions are the most studied and emphasized upon. Although a significant number of studies had been conducted on various developing countries particularly African countries but very few exist for Pakistan. This gap in literature makes it difficult for the policymakers and mobile money service providers to understand

the low adoption of mobile money in Pakistan. Since, State Bank of Pakistan has identified mobile money as a tool for financial inclusion in Pakistan, it is vital to understand the underlying factors related to consumer's characteristics and behavior affecting its adoption.

Chapter 3: Theoretical Framework

3.1 Background

The factors affecting adoption of mobile money are categorized into demand side and supply side. Demand side factors consist of demographic and socio-economic characteristics of the consumers like age, gender, income, education etc. Whereas, supply side variables consist of attitudes and behavioral intentions of the consumers (Abel et al., 2018).

In the last two decades, various theories and models of Information System and Social Science have been used to determine the factors affecting consumers' intentions to adopt or the usage of technologies. Among these extensively used theories and models, Technology Acceptance Model (TAM) of Davies (1989), Unified Theory of Acceptance and Use of Technology (UTAUT) of Vankatesh et al., (2003), Diffusion of Innovation Theory (DOI) of Roger (1995) and, Azjen's (1985) Theory of Planned Behavior (TPB) are the most tested models to understand the adoption and diffusion process of a particular technology or innovation.

3.2 Research Models and Hypotheses

This study focuses on the identification of both demand and supply related factors that may hinder or facilitate the adoption of mobile money for financial inclusion. Two separate research models are developed for the identification of these factors.

The model for Demand side factors consists of demographic or socio-economic variables including age, gender, income, education, employment status, ownership of bank account and distance to the nearby financial institution (Akudugu, 2013), (Maradung, 2013) as independent variables. The dependent variable is the consumer who either uses or not uses mobile money. Figure 1 represents the conceptual framework of the research model for demand side.

3.2.1 Demand Side – Socio-Economic Factors

***Age**:* Empirical findings show that younger people accept and adopt new technology faster than the older age group consumers (Rogers, 2003a) (Oumlil & Williams, 2000) (Morris & Venkatesh, 2000). According to Meyer (2008) younger people are more tech savvy and likes to make use of the new technology quicker than the older generation who are more subjective and resistant towards the new technologies. This was found to be the case in Finland also, a world leader in electronic banking. Mattila et al, (2003) found that in Finland internet banking was not a popular choice among mature people. Laukkanen et al, (2007) later reported that mature people are less likely to switch to mobile banking as they perceive difficulty in using new technologies and innovations and fear misunderstanding any important information.

$H_{1/1}$: Young people are more likely to be the adopter of mobile money in Pakistan

Gender: It is one of the most researched demographic factors in understanding the adoption of mobile and electronic services. In many empirical findings, researchers have found that male are quick adopter of mobile banking services. (Rogers, 2003a) (Laforet & Li, 2005). In Finland, a study of internet banking customers by Laukkanen & Pasanen (2008) revelaed that males are the dominant users of this new form of banking in early 2000s. Similar results were found regarding the usage of internet in the countries of USA, Maxico, Korea, UK, Germany, Italy, Japan and China where Chen & Wellman (2004) found that women are less likely to adopt internet compared to men.

$H_{2/1}$: Men are more likely to be the adopter of mobile money in Pakistan

Education: Empirical findings suggest that educated individuals are more likely to adopt new technologies like mobile money for financial services as compared to less educated consumers

(Rogers, 2003a) (Munyegera & Matsumoto 2016). It is because with higher levels of education, consumer develop a greater understanding and the ability to use new innovations with higher level of confidence (Meuter et al, 2003).

$H_{3/1}$: People with higher educational background are more likely to be the users of mobile money services in Pakistan

Income and Employment Status: Both these factors have found to significantly influence the adoption of new technologies in various regions. Employed and high income people are found to be more financially included (Musa et al., 2015) indicating that both of these factors are highly correlated to the initial adoption of technologies (Rogers, 2003). However, many empirical findings from Africa have shown that although rich are the initial adopters of mobile money, but with the passage of time poor people become its adopters to access affordable financial services. This was found by Jack & Suri (2011) in their study of the infamous M-Pesa of Kenya because at the time of launch of M-Pesa only 17% Kenyans were financially included but as of 2013, 83% of the population had access to financial services (Reuters, 2019).

Similarly, employment status of an individual is another important factor that can affect the person to use or not to use mobile money for financial services. Medhi et al. (2010) suggested that the kind of employment or business can make the individuals to adopt to mobile money services.

$H_{4/1}$: Income levels determine the adoption and use of mobile money services in Pakistan

$H_{5/1}$: Employment status determine the adoption and use of mobile money services in Pakistan

Bank Account Ownership and Distance to the Nearby Financial Institution: Financially excluded people require affordable financial services but not owning a bank account either due to accessibility issue or high fixed cost, increases their adoption rate of mobile money services.

Akudugu (2013) and Abel et al. (2018) identified Distance to the nearby financial institution as factor affecting financial inclusion. Hence, the same variable can be used for the present study but with the assumption that if the banks are far away then people will adopt mobile money services. However, it is unclear whether bank account ownership affect mobile money adoption or not. Maradung (2013) found that bank account ownership does not determine the use of mobile money services. To find out this relationship, the present study hypothesize that bank account ownership and mobile money service adoption are negatively associated with each other.

$H_{6/1}$: People not having bank account are more likely to be the users of mobile money in Pakistan

$H_{7/1}$: Large distances to the nearby financial institution make people to be the user and adopter of mobile money in Pakistan

Mobile Money Network: It is the availability of an agent and point of sale (POS) at the disposal of the people to avail mobile money services. Mobile money agents could either be direct agents hired and allocated by the operator or shopkeepers of the shops who have independently been assigned or given permission by the operator to provide mobile money services to the people. These agents are responsible for providing various services like OTC transactions, account registration and educating customers about other services they can avail. Despite the fact that mobile money services can be availed on the personal phone of the customers, they still rely primarily on agents and POS hence making their availability crucial (Mahmoud, 2019).

$H_{8/1}$: In the availability of mobile money network (agent and POS) people adopt mobile money services more often.

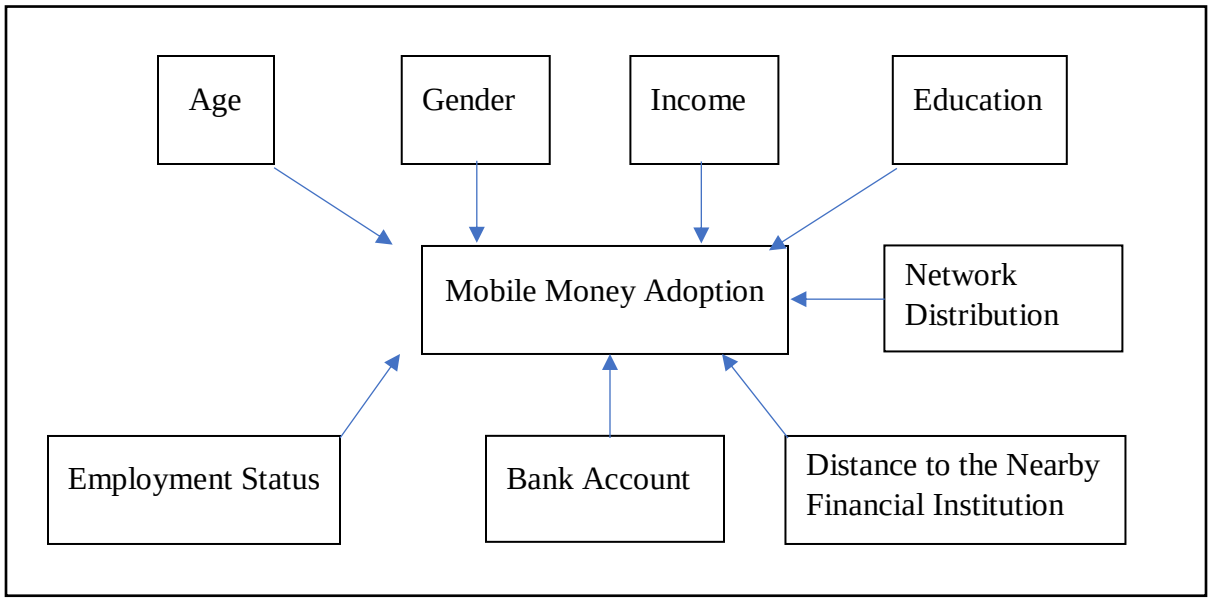


Fig 3.1: Conceptual Framework of Demand Side Factors

The model for supply side factors will include all those factors related to consumer behaviors and intention that may affect their decisions towards the adoption of mobile money. The study will be based on the framework of Unified Theory of Acceptance and Use of Technology (UTAUT) with additional constructs of Perceived Financial Cost, Perceived Trust and Perceived Risk to provide a more comprehensive analysis. Figure 2 represents the conceptual framework of the research model for supply side.

Model: Unified Theory of Acceptance and Use of Technology (UTAUT)

Unified Theory of Acceptance and Use of Technology (UTAUT) is an upgraded version of Technology Acceptance Model (TAM) proposed by Vankatesh et al., (2003). It was constructed by unifying eight different models of Information System and Social Science, all of which attempt to analyse the factors affecting consumer's intention and behavior to adopt innovations or new systems. After combining the similar constructs of all the models, UTAUT presents four key constructs for better and comprehensive analysis: Performance Expectancy, Effort Expectancy,

Social Influence, and Facilitating Conditions. The first three constructs determine the both behavioral intention (the intention of the user to use a technology) and usage towards the innovation and the fourth measures usage behavior only. The model has been modified by including gender and age as moderating factors for Social Influence (Vankatesh et al., 2003)

3.2.2 Behavioral Factors

Performance Expectancy (PE) is defined as the extent to which a person perceives the usefulness of the innovation (Vankatesh et al., 2003). If the consumers expect an innovation useful to them then they will most likely adopt it and if not then the adoption of the innovation will be low. A significant number of empirical studies have shown that behavioral intention of the consumer towards a technology depends on performance expectancy (Luarn & Lin, 2005), (Sripalawat et al. 2011), (Amin et al. 2008). The proposed hypothesis is as follows:

$H_{1/2}$: *Performance expectancy predicts consumer's intention to use Mobile Money services in Pakistan.*

Effort Expectancy is defined as the ease-of-use related to an innovation which if lacks then can adversely affect the adoption of that innovation. New technologies and innovations are meant to make the lives of consumers easier but if the technology is difficult to use and complex to understand then its adoption rates will be low (Vankatesh et al., 2003). Hence if a person perceive mobile money easy to use to he or she is more likely to adopt it.

$H_{2/2}$: *Effort expectancy predicts consumer's intention to use Mobile Money services in Pakistan.*

Social Influence: "The degree to which an individual perceives how important others believe he or she should use the new system" (Venkatesh et al., 2003). Peer groups and surroundings directly or indirectly impact the behavior of the consumers towards the adoption of products. Social

Influence is simultaneously influenced by all demographic variables i.e., age and gender in a way that older women are more likely to be influenced by the opinions of other close to them. (Venkatesh et al., 2003). However, in China, Venkatesh et al., (2010) found that irrespective of age, gender social influence is a major factor affecting technology adoption whereas, in US demographic variables moderate social influence. In contrast to this, Sarfaraz (2013) found social influence not a factor affecting mobile banking in Jordan.

$H_{3/2}$: *Social influence moderated by age, gender predicts consumer's intention to use Mobile Money services in Pakistan.*

Facilitating Conditions: "The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system" (Venkatesh et al., 2003). These conditions directly influence the usage behavior of the consumers (Venkatesh et al., 2003). In mobile money innovation context, it refers to having relevant knowledge, strong network coverage, availability of technological resources like cell phone, accessible agent network and customer support for the adoption of mobile money (Micheni et al. 2013).

$H_{4/2}$: *Facilitating conditions experience predicts consumer's intention to use Mobile Money services in Pakistan.*

Additional Constructs: Considering that Pakistan is a developing country where majority of the people either do not have access to affordable financial services or are skeptical about the ones being provided to them, Perceived Financial Cost, Perceived Trust and Perceived Risk are added to the research model. These additional constructs will provide a comprehensive analysis of the factors affecting the use and adoption of mobile money services.

Perceived Financial Cost is an important factor affecting the adoption of mobile money as people give great important to the cost structure of the service being provided to them before adopting it (Luarn & Lin, 2005). It is referred to all the costs that the consumers perceive are associated with the use of mobile money. These costs either in the form of transaction cost of transferring money or mobile network charges or mobile device costs, effects both the behavioral intention and the usage of mobile money (Siddik et al. 2014). If the consumers perceive that the cost of using mobile money service is high then they are less likely to adopt it or continue to use it hence the propsed hypothesis is:

$H_{5/2}$: *Perceived Financial Cost has a significant negative impact on the behavioral intention to use Mobile Money in Pakistan.*

Perceived Trust is defined as a degree of assurance to the consumers that a satisfactory service will be provided to them without much hindrance (Tobbin, 2011). The presence of Trust is essential in the environment of business transactions. It is an important factor with great potential to influence the consumer behavior and their intentions towards the adoption of new services and products (Kim Prabhakar, 2004), (Mallat, 2007). For instant, in case of inconvenient situations, the continuous support and services provided by the mobile money service providers builds the trust of consumers in them either leading towards adoption or increased usage of mobile money (Sarfaraz, 2017).

$H_{6/2}$: *Perceived Trust is positively associated with consumer's intention to use Mobile Money services in Pakistan.*

Perceived Risk is defined as the potential negative uncertainties related to privacy and security that the consumers associate with mobile money transactions (Tobbin, 2011). Generally, people

are resistant to change and fear risking situation. This behavior makes them to give more importance to risk minimization over utility maximization (Bauer et al. 2005). Given this desire many studies have found that consumer's perception of risk strongly affects their adoption and usage behavior (Tan & Teo, 2000), (Polatoglu & Ekin, 2001). Hence, if the consumers perceive that their transactions are occurring in a secure environment in which their privacy is also ensured then their intention to adopt mobile money will be high otherwise it will be low (Luarn & Lin, 2005).

$H_{7/2}$: *Perceived risk is negatively associated with consumer's intention to use Mobile Money services in Pakistan.*

Behavioral Intention (BI): The intention of the consumer to use mobile money is taken as both dependent and independent variable. Behavioral Intention is defined as *the strength of one's intention to perform a special behavior.* Hence, it has been established that if a person has strong intention towards the adoption of a technology then he is more likely to use it highlighting a significant positive relationship between behavioral intention and the usage of technology (Vankatesh et al., 2003).

It is used as a dependent variable with Performance Expectancy, Effort Expectancy, Social Influence, Perceived Financial Cost, Perceived Risk and Perceived trust as independent variables.

$H_{8/2}$: *Behavioral Intention of the consumer has positive influence on the usage of mobile money.*

Usage Behavior: It is taken as an independent variable, which is directly and positively affected by the Behavioral Intentions of the consumer and Facilitating Conditions. The present study defines Usage Behavior as *how often a person uses mobile money in Pakistan.* Facilitating Conditions and Behavioral Intention of the consumer directly affect it.

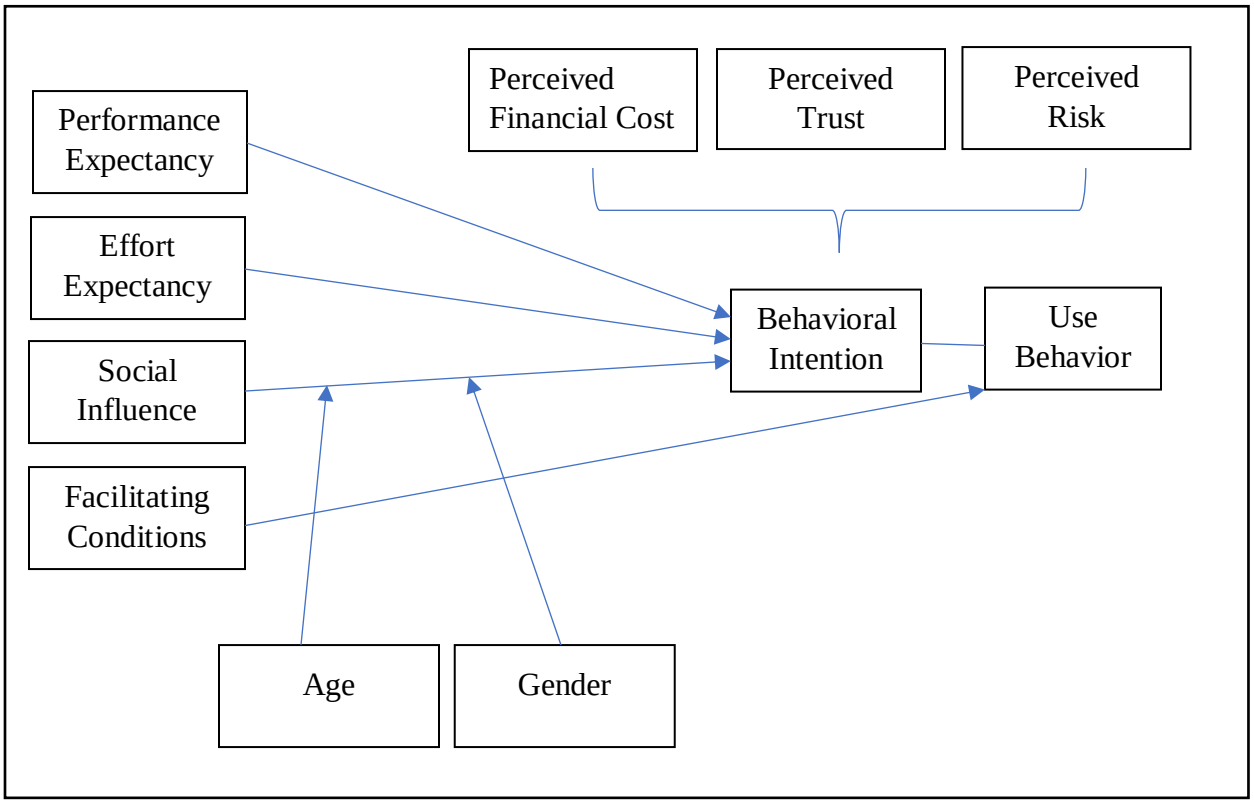


Figure 3.2 Conceptual Framework of Supply Side Factors
(Venkatesh et al. 2003)

Chapter 4: Research Design and Methodology

4.1 Introduction

This chapter deals with explaining the research design and its methodology used in this study to test the factors responsible for influencing the mobile money services adoption in Pakistan. It includes research design, data collection methodology, population of the study, sampling method, data analysis and estimation techniques and validity of the study to identify which factors affect mobile money adoption in Pakistan.

4.2 Data and Methodology

A consumer survey was conducted to collect data primarily based on convenience sampling and partially and loosely based on stratified and snowball sampling. Convenience sampling is a non-probability sampling technique in which easily accessible consumers were chosen (Sedgwick, 2013) to determine the factors affecting the users and non-users' intentions to adopt mobile money in Pakistan. Snowball sampling is another type of non-probability sampling technique in which the sample subjects help the researcher in recruiting more sample subjects for the study (Heckathorn, 2011). This technique is beneficial for reaching out to hard places and individuals (Biernacki & Waldorf, 1981). On the other hand, a stratified sampling is a type of random sampling in which the target population is divided into subgroups commonly referred as strata (Investopedia). The study loosely adopted stratified sampling along with the other sampling methods with geographical location i.e., provinces as its strata. The sample size from each province was taken on the basis of its population.

Survey Instrument: A structured and self-administered questionnaire was used as the data instrument. The questionnaire consisted of four sections: Section A comprised of demographic

information of the respondents, Section B collected the information regarding the access to the mobile money services, Section C collected data regarding the usage of mobile money services and the last section, Section D recorded the responses on behavioral factors that affect the consumer intention and behavior towards the adoption of mobile money. The dependent variable; Behavioral Intention, and independent variables Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions Perceived Financial Cost, Perceived Trust, and Perceived Risk were all measured in terms of five point ordinal (Likert) scale varying from strongly agree to strongly disagree *(See Appendix)*.

The items of this questionnaire were primarily based on the previously conducted studies and on the definition of each construct given by Venkatesh et al. (2003).

Moreover, to ensure the validity and reliability of the questionnaire closed ended and Likert scale questions were used in the designing of the questionnaire. A pilot test of the questionnaire was also conducted through friends.

Survey Method: There are two methods of conducting a survey; traditional and digital platforms. The traditional method is the one in which either a printed copy of the questionnaire is given to the respondents so that they can fill in or the researcher can ask the questions and fill in the respondents' answers. On the other hand, digital way of conducting a survey consists of sending a digital form of the questionnaire to the respondents and they fill in their answers. Google forms are the most commonly used digital forms to collect information from the people. Digital method is more useful to cover a sample over distances. However, the drawback of it is that people not having access to internet cannot participate in the process especially the lower income group. To overcome this barrier, people belonging to the lower income group were contacted via cellphone to record their responses as it was crucial for the present study.

The choice of using Google form to collect the data for the study was also due to the Coronavirus pandemic and world-wide lockdown situation. The inclusion of all segments of the society was ensured by reaching out to the people via phone calls.

Target Population: For analyzing the factors affecting the adoption of mobile money in Pakistan, the inclusion criteria for the respondents was to be those aged 15 and above.

Sampling Frame and Size: The sample frame consisted of individuals both male and female belonging to either rural or urban centers of Federal, Punjab, Sindh, KP, Baluchistan and Gilgit Baltistan. For this purpose, half of the sample size consisted of the students and employees at Quaid-i-Azam University. The reason behind this is that the quota system of the university allows easy access of people belonging to all provinces of Pakistan. The rest of the sample consisted of the people that the researcher was able to access at her convenience.

The Google Form link of the questionnaire was shared among all the people the researcher could access and majority of the responders then shared it further in their circle. Many of the respondents from Sindh, Balochistan and KP were contacted via phone calls. This was the best method to deploy to cover a large and geographically dispersed population across Pakistan. After four weeks since the first respondent was shared the questionnaire link, a final number of 250 responses were collected.

4.3 Research Hypothesis

On the basis of above discussion following hypothesis are set for this study:

$H_{1/1}$: *Young people are more likely to be the adopter of mobile money in Pakistan*

$H_{2/1}$: *Men are more likely to be the adopter of mobile money in Pakistan*

$H_{3/1}$: *Levels of education determine the adoption and use of mobile money services in Pakistan*

$H_{4/1}$: *Income levels determine the adoption and use of mobile money services in Pakistan*

$H_{5/1}$: *Employment status determine the adoption and use of mobile money services in Pakistan*

$H_{6/1}$: *People not having bank account are more likely to be the users of mobile money in Pakistan*

$H_{7/1}$: *Large distances to the nearby financial institution make people to be the user and adopter of mobile money in Pakistan*

$H_{8/1}$: *Availability of mobile money network compels people to adopt mobile money services*

$H_{1/2}$: *Performance expectancy predicts consumer's intention to use Mobile Money services in Pakistan.*

$H_{2/2}$: *Effort expectancy predicts consumer's intention to use Mobile Money services in Pakistan.*

$H_{3/2}$: *Social influence moderated by age and gender predicts consumer's intention to use Mobile Money services in Pakistan.*

$H_{4/2}$: *Facilitating conditions predicts consumer's intention to use Mobile Money services in Pakistan.*

$H_{5/2}$: *Perceived Financial Cost has a significant negative impact on the behavioral intention to use Mobile Money in Pakistan.*

$H_{6/2}$: *Perceived Trust is positively associated with consumer's intention to use Mobile Money services in Pakistan.*

$H_{7/2}$: *Perceived risk is negatively associated with consumer's intention to use Mobile Money services in Pakistan.*

$H_{8/2}$: *Behavioral Intention of the consumer has positive influence on the usage of mobile money.*

4.4 Estimation Technique

Demographic and Socio-Economic Analysis: The study used Logit model to estimate which demand side variables affect mobile money adoption in Pakistan. Akudugu (2013) and Abel et al.,

(2018), used this estimation technique for the identification of financial inclusion determinants. Logit model is based on binomial or multinomial regression framework in which dependent variables are binomial or multinomial in nature. The underlying reason behind opting logit model is that the use of mobile money is a decision that people have to take based on different factors. This model gives information on how the change in the demographics and socio-economic attributes of people can affect their choices as compared to people with different attributes and demographics. In other words. Logit model used in this study will predict the probability of choosing one of the two categories of a dependent variable (to use or not to use mobile money) on the basis of independent variables (socio-economic factors). The independent variables could be either continuous or categorical. In the present scenario, except for age, all other independent variables are categorical.

In this case, the logit model is mathematically represented as:

$$Y_i = \beta X_i + U_i \qquad \text{(i)}$$

Where dependent variable (Yi) is the response observed for an individual who is either using mobile money or does not use it. X_i consists of all the dependent variables (age, gender, income, education, employment status, Bank Account Ownership, and Bank Distance) including geographical location of the respondents, provinces and rural/urban locality.

Yi is a binary variable that holds the value one if the person uses mobile money and zero in the opposite scenario. This indicates that $Y_i = 1$ if Xi is more than or equal to the critical value X* and $Y_i = 0$ when X_i is less than or equal to the critical value X*. Here, X* is actually the representation of all the independent variables (Xi) at the critical level.

Equation (i) is representing a binary choice model which estimates the probability of adopting mobile money by an individual in the light of a set of exogenous factors (X): The probability function is represented as:

$$P\ (Y_i = 1) = F\ (\beta' X_i) \qquad \text{(ii)}$$

$$P\ (Y_i = 0) = 1 - F\ (\beta' X_i) \qquad \text{(iii)}$$

This probability P is estimated using a logistic cumulative distribution function in the following way:

$$P(Yi = 1) = \frac{e\beta'^{x}}{1 + e\beta'^{x}} \qquad \text{(iv)}$$

$$P(Yi = 0) = 1 - \frac{e\beta'^{x}}{1 + e\beta'^{x}} = \frac{1}{1 + e\beta'^{x}} \qquad \text{(v)}$$

The regression of condition expectation of Y on X gives the probability model in the following way:

$$E(Y|X) = 1\ (F\ (\beta' X_i) + 0\ (1 - F\ (\beta' X_i)) = F\ (\beta' X_i) \qquad \text{(vi)}$$

The parameters of the independent variables do not necessarily indicate marginal effects as the model is nonlinear. Differentiating equation (vi) with respect to the independent variables (X_{ij}) gives the relative effect that each independent variable could have on the decision of adopting mobile money. It is represented as follows:

$$\frac{\delta P_i}{\delta X_{ij}} = F(\beta' X_i)\left(1 - F(\beta X_i)\right)\beta \qquad \text{(vii)}$$

The method of Maximum Likelihood (definition) is then used to estimate the model. The final empirical model to estimate the relationship between the probability of using mobile money and socioeconomic variables is given as:

$$P(MMU=1/X) = \beta_o + \beta_1 \text{ age} + \beta_2 \text{ gender} + \beta_3 \text{ employstatus} + \beta_4 \text{ edulevel} + \beta_5 \text{ bankdistance} + \beta_6 \text{ bankacc} + \beta_7 \text{ mmnetwork} + \beta_8 \text{ income} + U_i \quad \text{(viii)}$$

Where, *employstatus* is Employment Status, *edulevel* is Education Level, *bankdistance* is Distance from the Bank, *bankacc* is Bank Account Ownership, and *mmnetwork* is Mobile Money Network.

The table below provides the description and expected sign of each of the exploratory variables.

Table 4.1 Socio Economic Variables

Variable Name	**Type/Nature**	**Description**	**Relationship**
Age	Independent *Continuous*	How old the respondent is at the time of the survey	Negative
Gender	Independent *Binary*	Sex of the respondent, whether he is male or female. Female (1) Male (0)	Male: Positive Female: Negative
Income levels	Independent *Categorical*	Personal income level of the respondent	Positive
Bank Account Ownership	Independent *Binary*	It provides information about the individual whether he owns a bank account or not	Negative
Employment Status	Independent *Binary*	It provides information whether an individual is employed/earning income or unemployed	Positive
Bank Distance	Independent *Categorical*	How far a nearby financial institution is for people to access financial services	Positive
Education	Independent *Categorical*	Education level of the individual	Positive
Mobile Money Network	Independent *Binary*	The availability of mobile money network, agents, shops in the area	Positive
Mobile Money Adoption	Dependent *Binary*	People who have either adopted or not adopted mobile money	-

Behavioral Factor Analysis: Confirmatory Factor Analysis (CFA) is used to determine which Behavioral factors affect intention to use mobile money and its Usage Behavior Simultaneously. CFA is the most commonly used analysis technique in social research Kline (2015). It tests the hypothesized model that is based on theory and provides information whether the data fits the measurement model or not (Mitchell & Jolley, 2012). Moreover, CFA is an effective technique to combine the multiple observed variables into a single latent variable. Lema (2017) used the similar technique to determine the factors affecting mobile banking in Tanzania. CFA use Maximum Likelihood for regression analysis. It is effective for the type of data that is non-normal and for the indicators that are scaled in nature (Millsap & Tein, 2004).

Mathematically:

$$BI = \alpha_0 + \alpha_1 PE + \alpha_2 EE + \alpha_3 SI + \mu \qquad (ii)$$

Where;

BI represents Behavioral Intention to use Mobile Money,

PE represent Performance Expectancy

EE represents Effort Expectancy

SI represents Social Influence

μ is the error term.

$$UB = \Upsilon_0 + \Upsilon_1 BI + \Upsilon_2 FC + \epsilon \qquad (iii)$$

Where UB represent User Behavior, FC means Facilitating Conditions, and ϵ is the error term of equation (iii).

Table 4.2 Behavioral Variables

Variable Name	**Type/Nature**	**Description**	**Relationship**
Performance Expectancy (PE)	Independent *Ordinal*	Usefulness of mobile money perceived by the people; measured in terms of 5 items	Positive
Effort Expectancy (EE)	Independent *Ordinal*	How much easy-to-use mobile money is perceived by the people; measured in terms of 4 items	Positive
Social Influence (SI)	Independent *Ordinal*	The degree to which an individual perceives how important others believe he or she should use mobile money; measured in terms of 3 items	Positive
Facilitating Conditions (FC)	Independent *Ordinal*	The degree to which an individual possesses all the conditions like availability of network, phone, agent etc. to support the use of mobile money; measured in terms of 5 items.	Positive
Perceived Financial Cost (PFC)	Independent *Ordinal*	All the costs that the consumers perceive are associated with the use of mobile money; measured in terms of 3 items.	Negative
Perceived Risk (PR)	Independent *Ordinal*	Potential negative uncertainties related to privacy and security that the consumers associate with mobile money transactions; measured via 3 items.	Negative
Perceived Trust (PT)	Independent *Ordinal*	A degree of assurance to the consumers that a satisfactory service will be provided to them without much hindrance; measured via 2 items	Positive
Behavioral Intention (BI)	Independent and Dependent *Ordinal*	The intention of the consumer to use mobile money; measured via 3 items.	Positive
Usage Behavior (UB)	Dependent *Ordinal*	How often a person uses mobile money for financial transaction	-

Chapter 5: Results and Discussion

5.1 Introduction

This chapter will focus on answering the research questions on the basis of previously mentioned research design. It will include descriptive statistics, Exploratory Data Analysis and estimation results highlighting the usage, perceptions and factors affecting the adoption of mobile money in Pakistan.

5.2 Descriptive Statistics

Table 5.1 below shows the descriptive statistics of a sample of 250 users and non-users of mobile money across Pakistan.

Table 5.1: Descriptive Statistics

Variables	Classification	Frequency	Percentage
Gender	Male	114	46%
	Female	136	54%
		250	*100%*
Age Groups	15-30 years	176	70%
	30-45 years	48	19%
	45-60 years	26	10%
		250	*100%*
Salary	Less than 20,000	134	54%
	20,000-50,000	59	24%
	50,000-80,000	26	10%
	Above 80,000	31	12%
		250	100%
Area	Urban	177	71%
	Rural	73	29%
		250	*100%*
Province	Punjab	145	58%
	Sindh	35	14%
	Balochistan	19	8%
	KP	41	16%
	AJK/Gilgit	10	4%
		250	*100%*

Education Level	Primary	9	4%
	Secondary	10	4%
	Intermediate	28	11%
	Higher	203	81%
		250	*96%*
Employment Status	Employed	120	48%
	Unemployed	130	52%
		250	*100%*
Conventional Bank account	Yes	192	77%
	No	58	23%
		250	*100%*
Mobile Money Awareness	Yes	234	94%
	No	16	6%
		250	*100%*
Mobile Money Used	Yes	180	72%
	No	70	28%
		250	*100%*
Mobile Money Account	Yes	94	38%
	No	156	62%
		250	*100%*
Mobile Money Network Availability	Yes	212	85%
	No	38	15%
		250	*100%*
Distance from the bank	0-3KM = 1	171	68%
	3-6KM =2	44	18%
	6-9KM = 3	21	8%
	Above 9KM =4	14	6%
		250	*100%*
Cellphone Ownership	Yes	243	97%
	No	7	3%
		250	*100%*

5.3 Exploratory Data Analysis

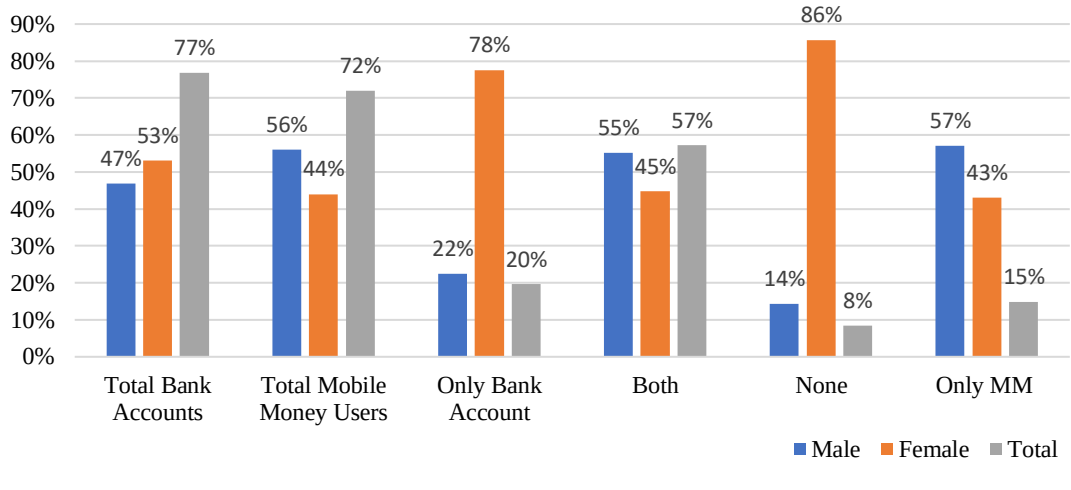
Exploratory Data Analysis is a well-established tradition of statistics that provides visual representation of the data to extract all the information that is beyond formal modelling and hypothesis testing (Behrens, 1997).

This section discusses the other aspects of mobile money in the matter of seeking financial services. It will also shed light on the financial patterns of the people and how do they use mobile money for financial transactions in the following dimensions:

5.3.1 Access to Financial Services

Having access to financial services and products as per the need of the person; transaction, payment, saving, credit and insurance is considered important for improving the living standards of the people. Fig 5.1 shows that 77% of the respondents of this study had conventional bank account and 72% of the people have used mobile money. In contrast to this, State Bank of Pakistan revealed in Access to Finance Survey (2015) that on an aggregate level, including both formal and informal means 47% of the population is financially included against 53% financially excluded.

Fig 5.1. Financial Inclusion



The graph also shows that out 20% of the people who only have bank account are majority women but in case of only mobile money the percentage of male (57%) is higher than that of females. Moreover, 57% of the total respondents avail financial services through both banks and mobile money whereas, only 8% of the people do not avail financial services from any of the two service providers.

Loan and Saving Behavior: Savings are one of the drivers of Financial Inclusion (Karandaaz, 2020). In Pakistan, 35% of the people have shown saving behavior in 2017 as per the FINDEX (2017).

Fig 5.2 shows that 85% of the respondents of this study do show saving behavior but with a majority of them saving whenever they can, at no specific interval.

Fig 5.2 Saving Behavior

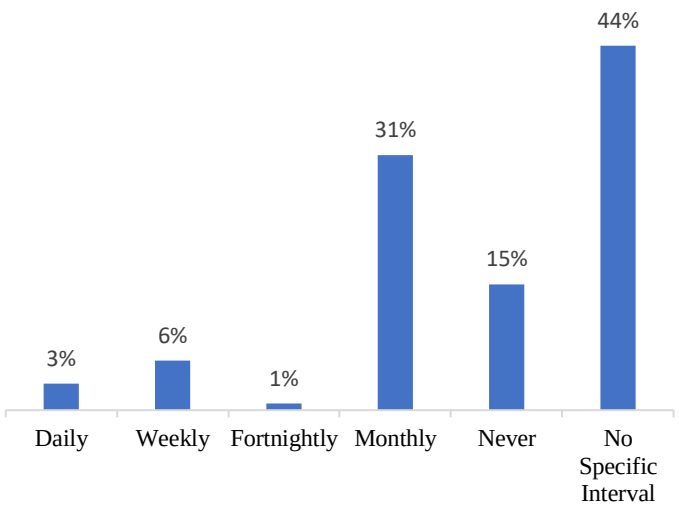
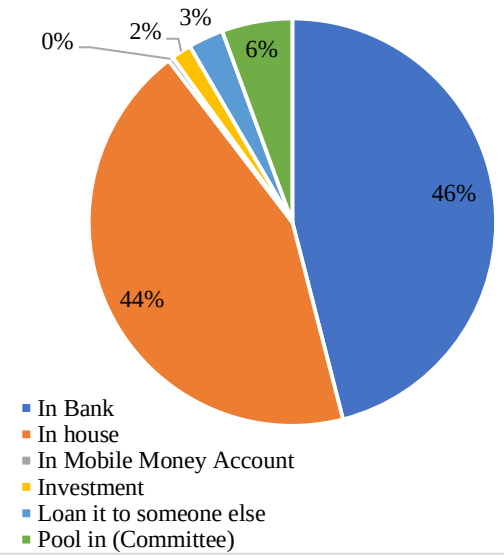
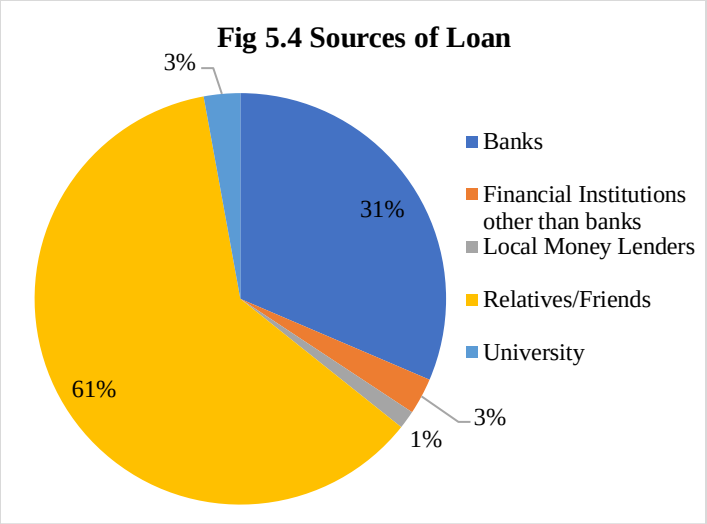


Fig 5.3 shows that most these people who save keep their savings either in bank (46%) or in their homes (44%). Whereas, only 6% of them pool in these savings in committees (informal method of group saving in Pakistan) and none of the respondents use mobile money account as a storage for their savings.

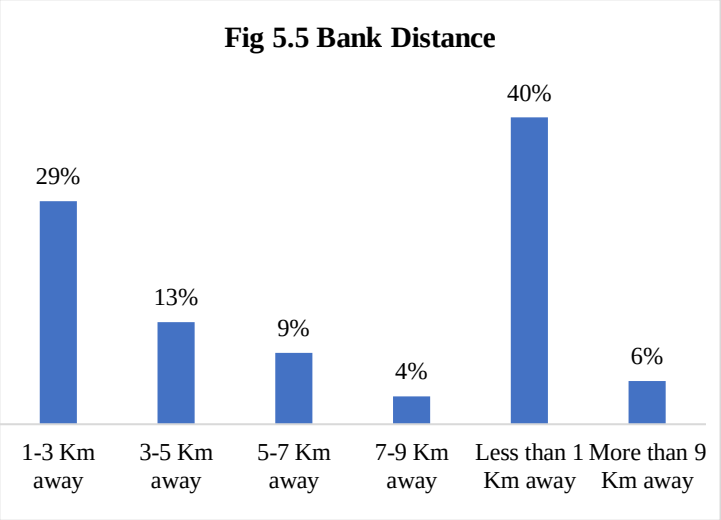
Fig 5.3 Saving Storage



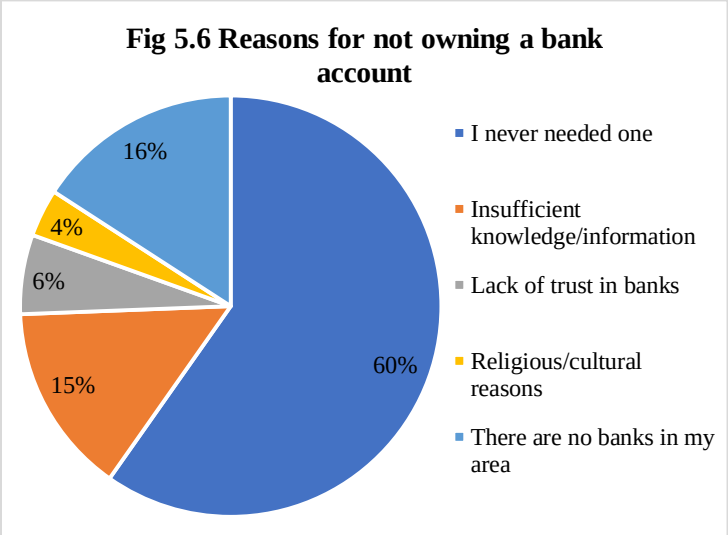
When people need financial assistance (loan) then 31% of them seek help from bank but majority of them (61%) turn to their relatives and friends and ask for loan from them (Fig 5.2). This reliance on relatives and friends for financial assistance is primarily due to the high interest and absence of any collateral against which they can buy loan from banks.



In accessibility, when respondents were asked about the distance to the nearby closest bank branch then 70% of them respondent that it is less than 3 km away (Fig 5.5).



In reasons for not owning a bank account, 60% of the people do not feel the need to have a bank account. Whereas, 15% respondent said that they lack sufficient knowledge and 16% do not have any banks in their area making it difficult for them to have a bank account (Fig 5.6).



5.3.2 Usage

When asked about the usage of mobile money then 72% respondent that they have used it for financial purposes and 32% have mobile money account as well.

Fig 5.7 depicts that Easypaisa is the most used mobile money service among other services in Pakistan and Jazz Cash is the second most used services. This is exactly in line to the share of Easypaisa and Jazz Cash in mobile money market i.e. 32% and 30% respectively.

Among the two models of Mobile Money, OTC and Mobile Money Account, results (Fig 5.8) show that their usage is at almost same level. 39% of the people use account and 40% of the people use OTC in Pakistan. Moreover, the frequency of usage (Fig 5.9) is showing that 37% of the people perform financial transactions on monthly level and only 17% of the people use it frequently.

Fig 5.7 List of Mobile money services used

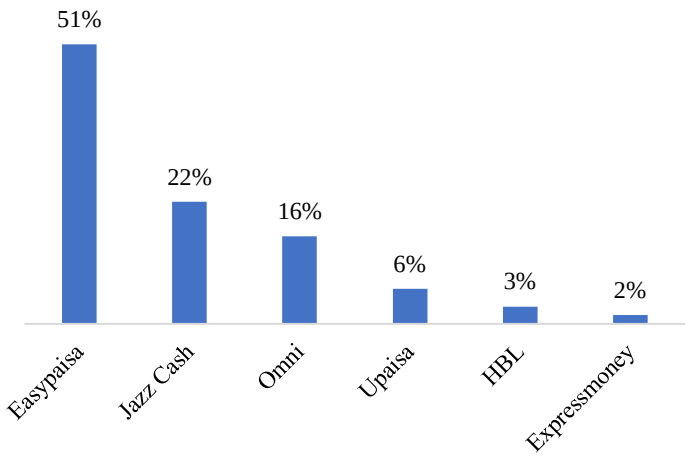


Fig 5.8 How is mobile money mostly used?

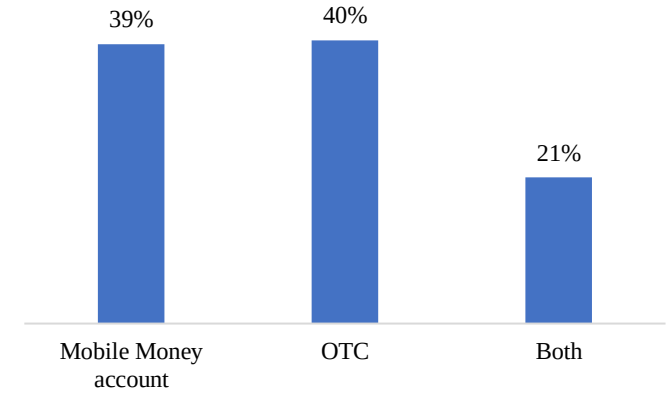


Fig 5.9 Frequency of Mobile Money Account Usage

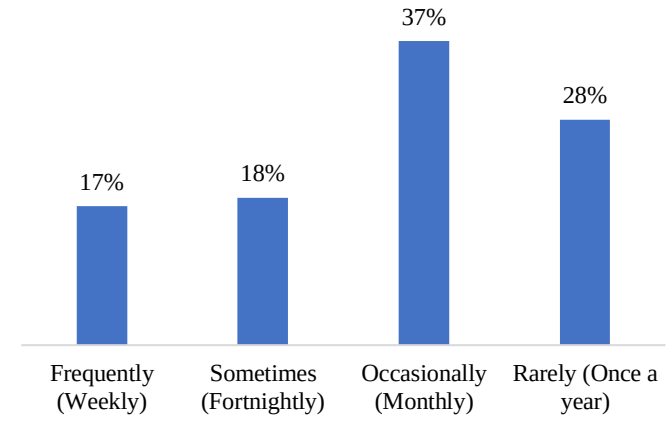
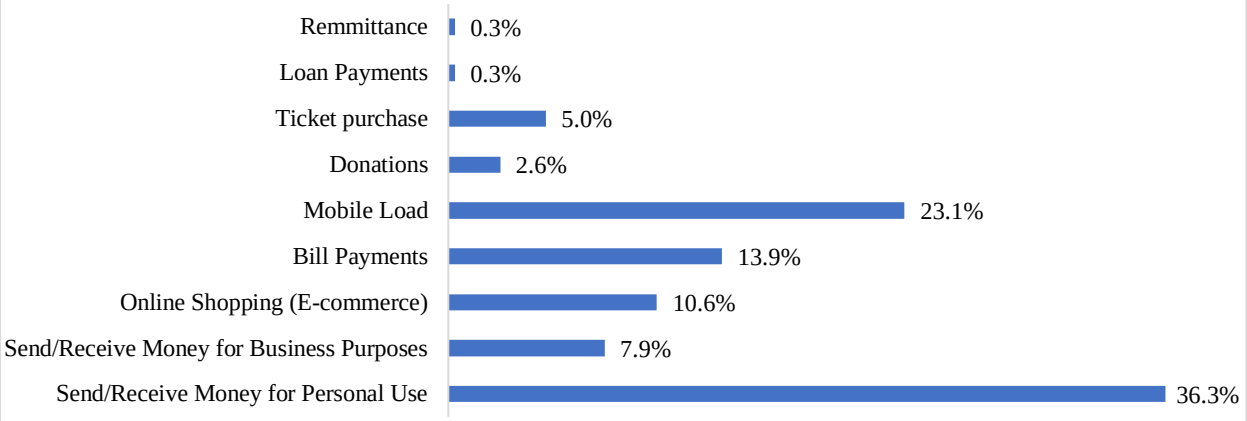


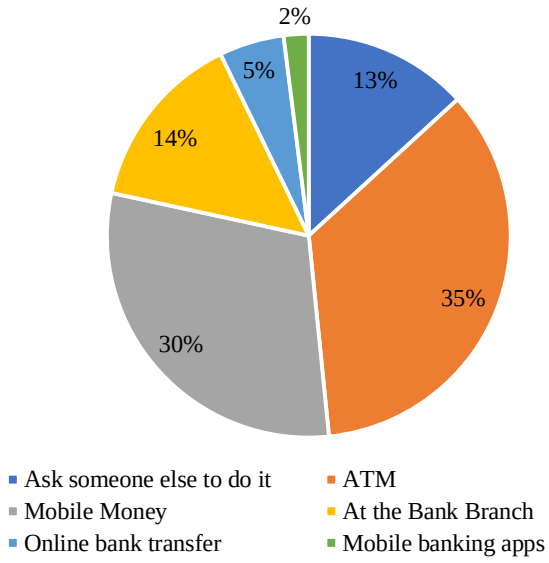
Fig 5.10 Functions Performed via Mobile Money



The use of mobile money is not only limited to peer-to-peer (P2P) transfers but also Fig 5.10 shows that majority of the people use it for the very same purpose. The other top functions performed through mobile money are mobile load, bill payments, and online shopping. Among 250 respondents, only one person used mobile money for loan purpose.

When asked about the mode of money transfer that people mostly used then fig 5.11 shows that majority of the people use ATM machines and 30% of the people use mobile money as the second mostly used method of transferring money. 13% would ask other people to transfer money for them and 14% would transfer through bank.

Fig 5.11 How do people mostly transfer money



5.3.3 Perceptions Regarding Mobile Money

Perceptions of the people regarding mobile money were recorded using a 5-point likert scale; strongly agree (SA), agree (A), neutral (N), disagree (D) and strongly disagree (SD).

Majority of the people, 73% perceive that mobile money is useful in conducting financial transactions (Fig 5.12).

84% respondent agreed that mobile money saves time when used for financial transactions in contrast to only 3% who disagreed with this perception (Fig 5.13)

It is a general perception that mobile money is easier than banks and when this was asked from the people then more than half of the respondents (60%) believe that it actually is easier to use for financial purposes than banks (Fig 5.14).

On the contrary, 30% of the people are uncertain about this and 10% disagreed and do not perceive mobile money easier than banks.

Fig 5.12 Mobile Money is Useful

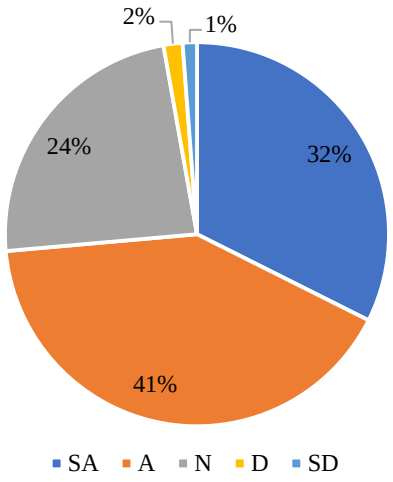


Fig 5.13 Mobile Money Saves Time

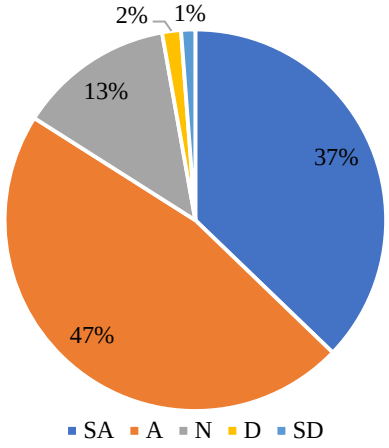


Fig 5.14 Mobile money is easier than banks

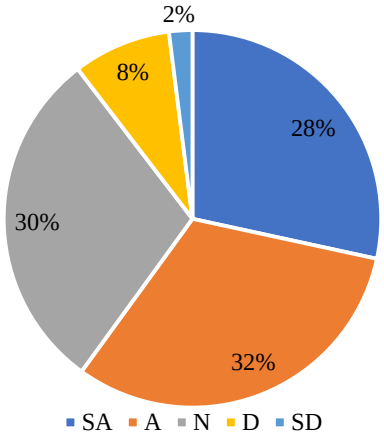


Fig 5.15 Mobile Money makes money accessible

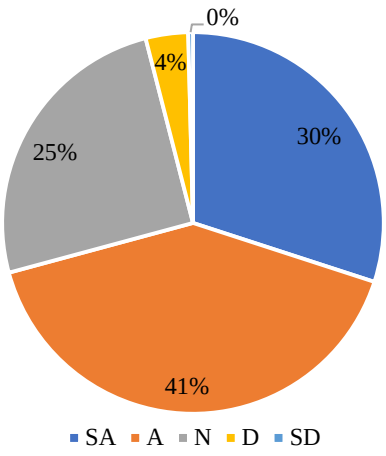


Fig 5.16 The cost of using mobile money is high

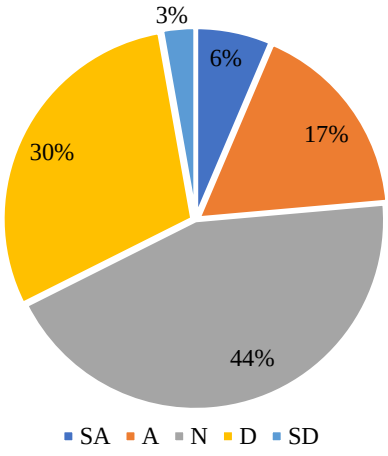
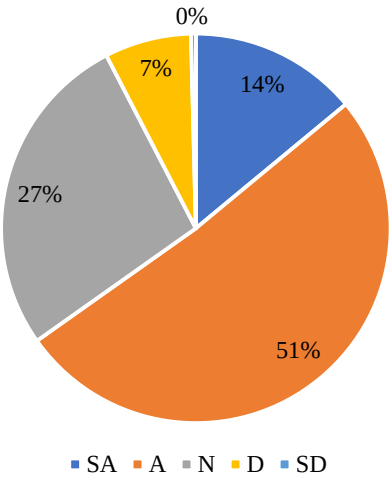


Fig 5.15 depicts that 71% of the respondents believe that mobile money makes money easily accessible for them in contrast to only 4% disagreeing with this.

Regarding the cost of using mobile money (Fig 5.17), majority of the people (44%) are uncertain about it. However, 33% of the respondents do believe that the cost is high against only 23% of the respondent who are against this perception.

Fig 5.17 Trust in Mobile Money



Lastly, Fig 5.17 shows that 65% of the respondents trust the mobile money service for conducting financial transactions as a reliable method against only 7% who do not trust it.

5.3.4 Conclusion

In the end, it is safe to conclude that the usage of mobile money is almost equivalent to the usage of banks but they perceive mobile money easier to use. Moreover, the use of OTC and mobile

money is also almost equivalent and is mostly used for P2P transfer. Lastly, the general perceptions of the people regarding mobile money are majorly positive except for cost of using mobile money which they believe is high.

5.4 Estimation Results and Discussion

There are two models used in this study to find which factors are responsible for affecting people's choice and behavior regarding the adoption of mobile money. Model I focuses on demographics and socio-economic variables for a demand side analysis whereas, Model II focuses on supply-side analysis highlighting the behavioral factors responsible for affecting the adoption rate.

5.4.1 Model I- Logit Model – Socio-Economic Factors

In this model a binary dependent variable, user and non-user of mobile money is used against eight independent variables. Among these independent variables age is the only continuous variables and the rest are either binary or categorical. Gender, Employment Status, Bank Account Ownership, Mobile Money Network are dichotomous dummy variable and ranges between 0 and 1. "1" is assigned to "female" and "yes" option which shows the presence of a certain attribute whereas, "0" is assigned to "male" and "no" option which shows the absence of that attribute.

Education, Income and Bank Distance are categorical variables measured in terms of levels/categories. These are described as below along with their assigned values:

Education Levels

1. Primary to Matric (1)
2. Intermediate (2)
3. Graduate and above (3)

Income Levels

1. Less than PKR 20,000 (1)
2. PKR 20,000- PKR 50,000 (2)

3. PKR 50,000- PKR 80,000 (3)
4. Above PKR 80,000 (4)

Bank Distance

1. 0-3 Km = 1
3. 6-9 Km =3
2. 3-6 Km = 2
4. Above 9 Km =4

Table 5.2 Demographic and Socio-Economic Factors Affecting Mobile Money Adoption

	dy/dx	z	P>|z|	Std. Err
Gender	-0.3332919	-5.82	0.000***	.0572281
Age	-0.00277	-0.86	0.390	.0032224
Employment Status	-.0374608	-0.63	0.531	.059826
Bank Account ownership	0.0154709	.0.20	0.844	.0786785
Mobile Money Network	0.3019577	4.85	0.000***	.0622552
Education level 1	0.057873	0.39	0.696	.1482931
Education level 2	-.2220789	-2.37	0.018**	.0935674
Education level 3	0			(omitted)
Income level 1	.0227558	0.25	0.803	.0913128
Income level 2	-.0447064	-0.50	0.615	.0890049
Income level 3	.0015302	0.01	0.989	.1063647
Income level 4	0			(omitted)
Bank Distance 1	.2615979	2.48	0.013**	.1056895
Bank Distance 2	.2865868	2.37	0.018**	.1210868
Bank Distance 3	.3835075	2.72	0.007***	.140944
Bank Distance 4	0			(omitted)

****Significant at 1%, ** significant at 5%, * significant at 10%*

Table 5.2 presents the results of the Logit model, which comprised of eight independent variables and a dichotomous dummy dependent variable, user and non-user of mobile money. The results show displayed are the relative effects of choosing between using and not using mobile money when several demographic and socioeconomic variables are present as exogenous.

Gender plays a significant role in the adoption of mobile money as it is significant at 1% level of significance. The coefficient of gender (-0.3333) is in line with the hypothesis that between male and female, females are less likely to adopt mobile money. This finding is similar to Rogers (2003a), Chen & Wellman (2004), Laforet & Li (2005) and Laukkanen & Pasanen (2008).

Age does not seem to play any role in the adoption of mobile money according to the estimated results, as it is insignificant at all levels. However, we may interpret from its sign that young people choose mobile money more often than older age people do but since it is insignificant this hypothesis is not proved. In both cases when Age was taken as continuous and categorical variable same result was found. This result could be because in Pakistan people of different age groups adopt mobile money irrespective of their age.

Employment Status and Bank Account Ownership is also insignificant as their p-values (0.531 and 0.844) are greater than the significant level. Hence, whether people are employed or unemployed, have bank account, or not does not affect the adoption of mobile money. The reason could be that 57% of the respondents uses both mobile money and bank account. Their decision to use mobile money does not depend on having and not having a bank account as also found by Maradung (2013). Similarly, being employed or unemployed does not affect the decision to use mobile money in Pakistan.

In contrast to these, Mobile Money network is significant factor that affects the decision of a person to adopt mobile money or not. Mobile Money Network is significant at 1% level of significance and the sign of its coefficient is also positive which implies that when there is a Mobile Money Network in an area then people are more likely to adopt mobile money services. This finding is supporting the hypothesis and the finding of Mahmoud (2019) that despite the fact that mobile money services can be availed on the personal phone of the customers, they still rely primarily on agents and POS hence making their availability crucial.

Education Levels are giving mixed results. Education Level 1, which represents respondents of less than intermediate education, is insignificant and does not affect the usage of mobile money in comparison to the group of respondents who belongs to Education Level 3. P-value of Education Level 1 is 0.696 which is insignificant at all levels. However, the results of Education Level 2 are significant as its p – value is 0.018**, significant at 5%. However, the sign of its coefficient is negative. This finding indicates that people with intermediate level of educational background are less likely to adopt mobile money services in Pakistan as compared to those who have higher education background. This finding is supporting the hypothesis and is in line with the empirical findings of Rogers (2003a) and Munyegera & Matsumoto (2016). The reason behind this is as Meuter et al (2003) explained that with higher levels of education, consumer develop a greater understanding and the ability to use innovations with higher level of confidence.

The results of Income Levels show that income is not a factor affecting the adoption of mobile money. All levels of income; Income Level 1 (p-value 0.803), Income Level 2 (p-value 0.615), Income Value 3 (p-value 0.989) are insignificant. Hence, this means that in Pakistan being rich and poor does not affect the decision to use mobile money. All groups equally adopt it. This result is against the hypothesis and the empirical findings mentioned earlier. Even though high-income

people are found to be more financially included (Musa et al., 2015) but that does not mean that only higher income group will adopt mobile money services. It is because as Jack & Suri (2011) found in Kenya that though rich people are the initial users of M-Pesa, with the passage of time it was adopted by people of lower income groups as well. Hence it could be concluded here that in using mobile money, income levels do not matter.

Lastly, all categories of Bank Distance are found to be significant in affecting the adoption of mobile money. Bank Distance 1 (0.013), Bank Distance 2 (0.018), and Bank Distance 3 (0.007) with their p-values written in the bracket imply that as the distance from the bank increase people are more likely to adopt mobile money for financial transactions. This indicates that distance to the nearby financial institution is a factor affecting the adoption of mobile money like Akudugu (2013) and Abel et al. (2018) found.

The results of Model I can be concluded as that among eight independent variables, four variables that are Gender, Mobile Money Network, Higher Education Level and Bank Distance affect the decision of people regarding the use of mobile money for financial transactions or not. The remaining four variables that are Age, Employment Status, Income Level, and Bank Account Ownership are not the factors that affect the adoption of mobile money in Pakistan. The decision to use mobile money is irrespective of the people's age, employment status, income level and owning a bank account.

5.4.2 Behavioral Factor Analysis

In order to find the behavioral factors that has the potential to affect the adoption of mobile money, Unified Theory of Acceptance and Use of Technology (UTAUT) is used with three additional variables. A total of eight independent and two dependent variables with age, gender and experience as moderating variables are used in this analysis with Behavioral Intention to use mobile money as dependent variable first and then as an independent variable.

First, the effect of Performance Expectance, Effort Expectancy, Social Influence, Perceived Financial Cost, Perceived Trust, and Perceived Risk is measured on Behavioral Intention to use mobile money and simultaneously the effect of Behavioral Intention and Facilitating Conditions is measured on the Usage Behavior.

The scale reliability of the variables was checked using Cronbach's Alpha. It measures how closed a particular set of items are related to its group (Zikmund et al. 2010). The reliability of the constructs used in this study varies from 0.6843 to 0.914, which depicts that the items of this study have a good reliability.

Table 5.3 Cronbach's Alpha Coefficient for the Construct

Construct	Cronbach's Alpha	Construct	Cronbach's Alpha
Performance Expectancy	0.8896	Perceived Financial Cost	0.7043
Effort Expectancy	0.6843	Perceived Risk	0.9147
Social Influence	0.7929	Perceived Trust	0.8373
Facilitating Conditions	0.8189	Behavioral Intention	0.9056

Table 5.4 Behavioral Factors Affecting Mobile Money Adoption: Regression Results

Variables	Coefficient	P-value	Standard Error
Performance Expectancy	0.209149	0.011**	0.0820049
Effort Expectancy	0.5172626	0.000***	0.1119535
Social Influence	0.6672546	0.000***	0.062208
Perceived Financial Cost	- 0.016664	0.779	0.0594852
Perceived Risk	0.0788073	0.341	0.0828151
Perceived Trust	0.2713281	0.003***	0.0925425
Facilitating Conditions	0.9174088	0.001***	0.2776201
Behavioral Intention	0.6497105	0.000***	0.1675335

****Significant at 1%, ** significant at 5%, * significant at 10%*

Table 5.4 contains the results of Model II that displays which behavioral factors affects the adoption of mobile money.

Performance Expectancy and Effort Expectancy are both positive and significant at 5% and 1% level of significance respectively indicating that they affect the Behavioral Intention to adopt mobile money for financial purposes as found by Vankatesh et al. (2003), Luarn & Lin (2005), Amin et al. (2008) and Sripalawat et al. (2011). This implies that if people perceive usefulness of mobile money and the mobile money technology is user-friendly (easy to use) then their Behavioral Intention to adopt mobile money is high supporting the two hypotheses ($H_{1/2}$ and $H_{2/2}$)

Social Influence is also found to be positive and significant in affecting Behavioral Intention. Moreover, it is found that Social Influence is not moderated by age but only by gender. This indicates that irrespective of the age, the intentions of women are more likely to be influenced by

the people in her surroundings be it friends or family. This finding partly supports the hypothesis $H_{3/2}$ and is supported by empirical findings of Kazi and Manan (2013), Lesa and Tembo (2016) and, Lema (2017).

On the other hand, the results show that Perceived Risk and Perceived Financial Cost are insignificant in affecting the Behavioral Intention of the consumer. Perceived Financial Cost although has expected negative coefficient sign but Perceived Risk is positive which is against the hypothesis "*Perceived risk is negatively associated with consumer's intention to use Mobile Money services in Pakistan".* However, Perceived Trust is positive and significant at 1% level of significance indicating that if people perceive mobile money service trustworthy then their intention to use mobile money is likely to be high. This finding has the support of Chogo & Sedoyeka (2014).

As mentioned earlier in that Facilitating Conditions and Behavioral Intention affect the Usage Behavior Directly hence, their effect was measured separately. The results in Table 5.4 shows that both Facilitating Conditions and Behavioral Intentions affect the Usage Behavior of the consumer positively as both variables are significant at 1% level of significance. Venkatesh et al. (2003), Micheni et al. (2013) and Maitai & Omwenga (2016) support this notion. This implies that having relevant knowledge, strong network coverage, availability of technological resources like cell phone, accessible agent network and customer support increases the adoption and Usage Behavior of mobile money consumers in Pakistan.

Chapter 6: Conclusion

In the present study, factors affecting the adoption of mobile money were examined through a consumer survey. We came to know from a large body of literature regarding the importance of financial inclusion and the role that mobile money is playing in achieving this goal. Since its emergence in 2007 in Kenya (not as the first mobile money service but as the first most successful to increase financial inclusion in a developing country) mobile money has ever been on an increase in other developing countries. Many empirical findings attempted to find the reasons behind its success in developing countries as the results were different in different countries. In some countries like Kenya, Uganda, Tanzania and Pakistan mobile money rose to success while in others it was not so successful in increasing financial inclusion.

Looking into the literature, one could find a large number of empirical studies on African countries for identifying the factors that affect the adoption of mobile money but there is not much evidence in context of Pakistan. Very few studies are conducted and among those are the studies of Kazi and Mannan (2013) and Abbas et al (2018) who used Technology Acceptance Model (TAM). The contribution of this study was to fill this gap in the perspective of Pakistan and to find on a larger scale the factors that affect the adoption of mobile money in Pakistan.

This study used demographic, socio-economic and, behavioral factors that has the potential to affect the adoption of mobile money and its Usage Behavior in Pakistan using consumer survey. Demographic and socio-economic factors were categorised as demand-side factors as they mainly constitute of the characteristics of the consumers. Whereas, behavioral factors were taken as supply related factors because these constituted of the perceptions that are formed regarding the financial services and products available in the markets. The data of 250 respondents was collected from all

over the country and respondents were included from each province i.e. Punjab, Sindh, Baluchistan, Khyber Pakhtunkhwa, Gilgit Baltistan and Azad Jammu and Kashmir

Separate methodologies were used for the estimation analysis of both sets of factors. The results of demographics and socio-economic factors through Logit estimation revealed that Gender, Mobile Money Network, Education level and Bank Distance are the significant factors that affect the adoption of mobile money in Pakistan. Moreover, in comparison to male, females are less likely to adopt mobile money for financial services due to social influence or societal and family constraints. Apart from this, Age, Employment Status, Income level and Bank Account Ownership are found to be insignificant in affecting the adoption of mobile money.

This result indicates that in Pakistan an individual of any age group, irrespective of his income levels, employment status or bank account ownership, could adopt mobile money. This finding does not support the notion that poor people are more likely to be the users of mobile money or people not having bank accounts are the majority users of mobile money. The reason of this finding is more likely to be the data sampling that was convenience due to time and financial constraints. The results could be different if percentage of the respondents from the rural and unbanked population is increased.

There is a high percentage of people, 57%, who despite of having bank account, uses mobile money and only 15% of the people rely only on mobile money for financial services.

On the other hand, the analysis of Behavioral Factors used Confirmatory Factor Analysis (CFA) to find out which behavioral factors affect the Behavioral Intention and the Usage Behavior of mobile money, respectively.

Confirmatory Factor Analysis (CFA) revealed that Performance Expectancy, Effort Expectancy, Social Influence and Perceived Trust are the significant factors that affect the Behavioral Intention to use mobile money positively. Among these Social Influence moderated by only gender and not age revealed that women are more likely to be influenced by the people in their surroundings when intending to use mobile money for financial purposes. On the Contrary, Perceived Financial Cost and Perceived Risk do not affect the intention to use mobile money. The reason behind the insignificance of Perceived Financial Cost could be the indifferent perceptions of the majority of the people regarding the cost of using mobile money. Moreover, risk not being a factor in the adoption and usage of mobile money could be due to the trust that people have in the service providers like Telenor and Jazz who are the most reputable telecoms in Pakistan.

Additionally, usage Behavior of mobile money is found to be directly influenced by the Facilitating Conditions and Behavioral Intention to use Money. This implies that having relevant knowledge, strong network coverage, availability of technological resources like cell phone, accessible agent network and customer support increases the adoption and Usage Behavior of mobile money consumers in Pakistan.

Mobile money services are further evolving in Pakistan as there is an increase in the mobile banking over the past few years. We are witnessing commercial banks launching their mobile banking apps which is making financial transactions easier for the consumer. However, to avail these services one needs to own a smart phone which only 16% of the people in Pakistan has as per the 2019 Global Mobile Market Report of Newzoo. Therefore, mobile money is still the tool to increase financial inclusion in Pakistan until smart phone penetration is increased to a significant level and people shift to mobile banking. However, smartphone penetration is highly dependent

on the income of the people or a decrease in the cost of smartphones that they become easily affordable.

For a better and deep understanding of mobile money in Pakistan, it is recommended that a study with a greater sample size using random sampling technique is carried out. Another research can also be carried out that test whether this claim '*mobile money is a tool of financial inclusion*' holds in Pakistan or not by conducting a study on the poor and unbanked population of Pakistan.

6.1 Recommendations

On the basis of the results of this study, here are few recommendations for the mobile money service providers and policy makers that can help them in devising effecting strategies and policies to increase the usage of mobile money in Pakistan to increase financial inclusion:

For Service Providers

1. Service providers should target women consumers to increase the adoption of mobile money among them.
2. The mobile money network should be extended in the areas where the distance to the nearby financial institution is large to include more people into the mobile money sector.
3. Lower education background means low financial knowledge, which makes consumers less confident about using mobile money due to the fear of making mistakes. That is why people with lower educational background are less likely to be the user of mobile money. Therefore, it is of paramount importance that they should be made aware of the complete knowledge regarding mobile money services through effective advertisement and marketing strategies.
4. As the intention to use mobile money and its usage both are largely depended on the Performance Expectancy and Effort Expectancy, service providers must keep a user-friendly

interface and easy to understand transaction systems in local languages. Moreover, service providers should use effective marketing strategies either through agents or through advertisements that educate the consumers about their services and products.

5. The provision of the service/product should be transparent, efficient and sufficient that people trust it and feel convenient to use it as per their needs.

For Policy makers

1. The results clearly show that if the environment is conducive especially in the context of trust then digital financial inclusion can be facilitated. Until unless regulatory environment is made conducive for the consumers, they will not trust their money with the financial network of mobile money. Policy makers should enhance the trust of the consumers in the financial institutions like banks and mobile money service providers by increasing the security standards.
2. Education really matters when it comes to the adoption of mobile money for the financial services. Basic literacy is not sufficient, a person must have basic financial literacy also. In this regard, commendable initiatives have been taken in the past two years by the State Bank of Pakistan jointly with National Institute of Banking and Finance (NIBAF) in the form of a National Financial Literacy Program for Youth (NFLP-Y) to impart financial education to the youth of Pakistan between the ages of 9 to 29 years. At the national level, this is a stepping stone to increase financial inclusion in Pakistan but it will not be sufficient unless people form underprivileged background are also included into this financial education program. A separate initiative should be started that only targets the poor and unbanked communities with low financial literacy.

3. All policies must be women centric that help in increasing mobile money adoption among them.
4. Distance to the financial institution is the most cited barrier of financial inclusion globally. Even for mobile money, OTC transactions are most common in which people have to go to the shops/agents to avail financial services. If the shops are far away then people will not use mobile money. Hence, the regulatory framework should facilitate the service providers in extending their agent network across the country.
5. Apart from the government to person (G2P) conditional and unconditional cash transfer schemes, other dealings of the government with the citizenry should shift onto branchless banking to increase financial inclusion base at national level. Moreover, government should push the corporate sector to do likewise and shift their financial dealings with the vendors and laborers to mobile money.

   Especially, an effective way of increasing mobile money adoption and usage is increasing the incentives for the people to pay their utility bills through mobile money. Government can nudge this by requesting the public to pay bills through mobile money. This idea can be pitched to the public by informing them that instead of standing in long queues for hours they can now simply pay their bills through mobile money.
6. Overall, convenient framework focusing on enhancing financial literacy, gender responsive product/services and ensuring facilitating conditions should be devised to increase the usage of mobile money in Pakistan.

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Appendix I

QUESTIONNAIRE
MOBILE MONEY FOR FINANCIAL INCLUSION:
FACTORS AFFECTING THE ADOPTION OF MOBILE MONEY IN PAKISTAN

MPhil Student: **Shanza Khalid**
Supervisor: **Dr. Abdul Jalil**
Pakistan Institute of Development Economics

Name: _____ Contact No: _____

A. DEMOGRAPHICS/PERSONAL INFORMATION

A1. Gender: ☐ Male ☐ Female

A2. Age Group: ☐15 to 30 years ☐30 to 45 years ☐45 to 60 years ☐Above 60

A3: Age in years: _____

A4. Marital Status: ☐Single ☐Married ☐Divorced ☐Widowed ☐Separated

A5. Employment Status: ☐Self-employed/Business ☐Private Employee ☐Agriculture/Livestock ☐Daily Wager ☐Government Employee ☐Unemployed ☐ Retired ☐Housewife ☐Pensioner ☐Student ☐Other

A6. Education Level: ☐Primary ☐Middle ☐Secondary ☐Intermediate ☐Graduate or Higher

A7. Mention Years of completed education: _____

A8. Province: ☐Punjab ☐Sindh ☐Balochistan ☐Khyber Pakhtunkhuwa ☐ AJK/Gilgit ☐FATA ☐Federal

A9. District: _____

A10. Type of residential area: ☐Rural (Village) ☐Urban (City/Town)

A11. House Ownership Status: ☐Owned ☐Rented ☐Sharing **A12.** Household members: _____

A13. Monthly Personal Income level: ☐Less than 20,000 ☐20,000 – 50,000 ☐50,000 – 80,000 ☐ above 80,000

A14. Monthly Household Income level: ☐Less than 20,000 ☐20,000 – 50,000 ☐50,000 – 80,000 ☐ above 80,000

A15. Main source of Household Income: ☐ Farming ☐Business ☐Labor ☐Private Job ☐ Government Job ☐Pension ☐other _____

B. ACCESS

B1. Do you own a Cell Phone? ☐Yes ☐No

B2. If yes, which type of phone do you own? ☐Smartphone ☐Basic Mobile Phone

B3. If no, then what are the reason of not owning a cell phone?

a. It is too expensive for me
b. I am not permitted to own a cell phone
c. I do not need a cell phone
d. It is difficult for me to use
e. I do not know how to get one
f. Other_____

B4. Do you have access to internet? ☐Yes ☐No

B5. If yes, which type of internet do you use? ☐Landline/Cable internet/Wi-Fi ☐Mobile Internet

B6. If No, what are the reasons of not having internet?

a. I cannot afford it
b. I am not permitted to use internet
c. I do not need internet
d. I do not have sufficient knowledge to use it
e. The area I live in does not have internet availability.
f. Other_____

B7. How frequently do you use the internet? ☐Daily ☐Weekly ☐Monthly ☐Never

B8. Can afford your internet expenditure? ☐Yes ☐No

B9. Do you own a bank account? ☐Yes ☐No

B10. If yes, which type of bank account do you own? ☐Current Account ☐Saving Account ☐Short Term Deposit Account ☐Long Term Deposit Account ☐Foreign Currency Account

B11. Do you have and use Debit card (ATM card)?

☐Yes, I have and I use it also ☐Yes I have but I do not use it ☐ No, I do not have it

B12. Do you have and use credit card?

☐Yes, I have and I use it also ☐Yes I have but I do not use it ☐ No, I do not have it

B13. Do you take loans? ☐Yes ☐No

B14. If yes, from whom you take loans?

a. Banks
b. Financial Institutions other than banks
c. Relatives/Friends
d. Local Money Lenders
e. Any other _____

B15. How regularly do you save?

a. Daily
b. Weekly
c. Fortnightly
d. Monthly
e. No Specific Interval
f. Never

B16. If you save, where do you keep your savings?

a. In house
b. In Bank
c. Pool in (Committee)
d. Loan it to someone else
e. Any other _____

B17. How far is the nearest branch of bank in your area?

a. Less than 1 Km away
b. 1-3 Km away
c. 3-5 Km away
d. 5-7 Km away
e. 7-9 Km away
f. More than 9 Km away

B18. If you do not own a bank account then what are the reasons for not having one?

a. I never needed one
b. Insufficient knowledge/information
c. I don't trust banks
d. There are no banks in my area
e. Religious/cultural reasons
f. Lack of cooperation by bank officials
g. Other

B19. Are you aware of Mobile Money services like Easy paisa, Jazz Cash, Omni, HBL Connect etc? ☐Yes ☐No

B20. Do you have mobile money shops/agents (easypaisa, omni, Jazz cash etc) in your area? ☐Yes ☐No ☐ I don't know

C. USAGE

C1. Have you ever used any of the mobile money services? ☐Yes ☐No

C2. If yes, then which of the following service providers you have used or usually use for mobile money?

☐Easypaisa ☐Jazz Cash ☐Upaisa ☐Onmi ☐Other _____

C3. Do you go to shops/mobile money agents for transactions (OTC)? ☐Yes ☐No

C4. Do you also have Mobile Money Account? ☐Yes ☐No ☐I don't know

C5. Which of the two do you use most often?

☒Mobile Money account ☐OTC (You go to the agent to send/receive money) ☐both

C6. How often do you go to shops/mobile money agents to send/receive money?

☒Frequently (Weekly) ☐Sometimes (Fortnightly) ☐Occasionally (Monthly) ☐ Rarely (Once a year) ☐Never

C7. If you have a mobile money account then how often do you use it? Time interval scale

☐Frequently (Weekly) ☐Sometimes (Fortnightly) ☐Occasionally (Monthly) ☐ Rarely (Once a year) ☐Never

C8. Do you also have mobile money apps in your phone? ☐Yes ☐No

C9. Which of the following mobile money apps do you have in your phone?

☒Easypaisa ☐Jazz Cash ☐Upaisa ☐UBL Omni ☐ Zong PayMax ☐SimSim ☐ Keenu Wallet ☐Other _____

C10. Which of the following functions do you perform from your mobile money accounts? (Multiple options)

☐Send/Receive Money for Personal Use ☐Send/Receive Money for Business Purposes ☐Bill Payments ☐Mobile Load ☐ Insurance ☐Donations ☐ Loan Payments ☐Remittances ☒Ticket purchase ☐Online Shopping (E-commerce)

C11. Who makes these transactions for you?

☐You do, yourself ☐Friends ☐Family ☐Relative ☐other _____

C12. What led you to start using mobile money in the first place? (Multiple Options)

☐ I had to send money to another person

☐ I had to receive money from another person

☐ Someone I know recommended/convinced me to use mobile money

☐ I had to send money to an organization/government agency: e.g., had to pay a bill

☐ I wanted a safe place to store my money

☐ I had to receive money from an organization/government agency: e.g., pension, conditional cash transfer or welfare benefits

☐ I saw posters/billboards/radio/TV advertising that convinced me

☐ I wanted to start saving money with an m-money account

C13. Select the main reasons for not using Mobile Money: (Multiple options)

☐ I do not have enough knowledge about it

☐ I prefer to use another type of institution, e.g. Bank

☐ Using mobile money is difficult

☐ Fees for using mobile money are too high

☐ There are no mobile money agents close to where I live/work

☐ The network coverage is too poor/unreliable in the area where people with whom I transact live/work

☐ Mobile money agents are unfriendly; they make me feel unwelcomed

☐ Mobile money services are not reliable

☐ Mobile money is not convenient for me

☐ I use somebody else's account

☐ My husband, family, in-laws do not approve of me using mobile money

☐ Other_____

C14. If need to, how do you mostly transfer money?

a. ATM
b. Mobile Money
c. At the Bank Branch
d. Ask someone else to do it for me
e. At Post office
f. Other _____

D. CONSUMER PERCEPTIONS AND BEHAVIOR TOWARDS MOBILE MONEY

I. Performance Expectancy	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I find Mobile Money Useful					
Mobile Money saves time in conducting a financial transaction					
Mobile Money increases my efficiency and productivity					
Through Mobile Money I can easily access money now					
It is a convenient way to conduct financial transactions					

II. Effort Expectancy					
It is easy for me to use mobile money					
Using mobile money is stressful					
It is a convenient way to conduct financial transactions					
I find mobile money easier than banks					
Learning to use mobile money is easier than banks					
III. Social Influence					
People who are important to me think that I should use mobile money					
People who influence my behavior think that I should use mobile money					
Most people surrounding me use mobile money					
IV. Facilitating Conditions					
I have the sufficient knowledge to use the system					
I have the mobile money point of service available to use					
I have mobile money agents available for my assistance					
I have the mobile network available in my area to use mobile money					
I have cell phone available to open mobile money account					
V. Perceived Financial Cost					
The cost of using mobile money is high					
I cannot afford owning a cell phone					
The cost of sending money is high					
VI. Perceived Risk *When using mobile money*					
I believe my information is kept confidential					
I believe my transactions are secured					
I believe my privacy would not be divulged					
VII. Perceived Trust					
I trust the system's reliability and availability					
I trust the mobile money service providers to provide customer support when faced with hindrances					
VIII. Behavioral Intention to Use					
I intend to use Mobile Money					
I plan to use Mobile Money					
I will continue using Mobile Money					

Thank you for taking out time to fill this form!